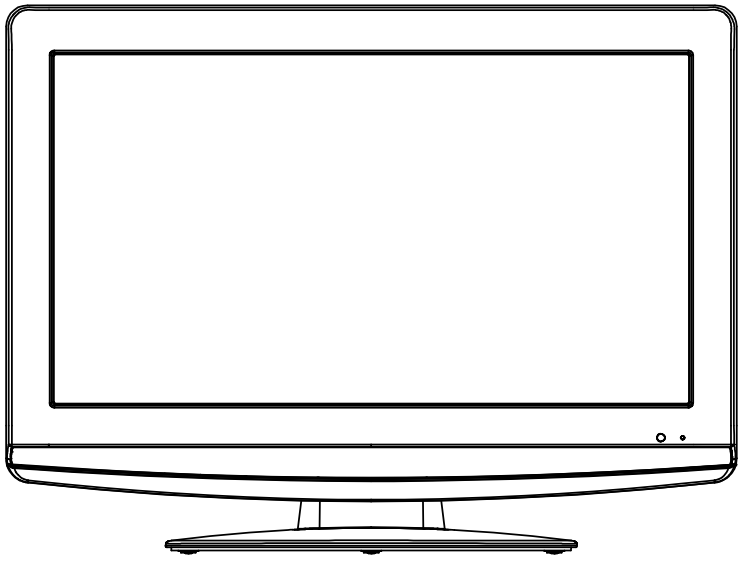
SERVICE MANUAL

19" WIDE TFT LCD TELEVISION WITH DIGITAL TUNER

HDLCD1909



All the specifications and features are subject to change without notice.

ORIGINAL
VERSION (B)

S/M CODE NO. M39A05WASM
DATE OF ISSUE 8/2009

IMPORTANT SERVICE SAFETY INFORMATION

Operating the receiver outside of its cabinet or with its back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage RF terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis, escutcheon, picture tube dag and tuner cluster when operating the chassis.

These receivers have a "polarized" AC line cord. The AC plug is designed to fit into standard AC outlets in one direction only. The wide blade connects to the "ground side" and the narrow blade connects to the "hot side" of the AC line. This assures that the TV receiver is properly grounded to the house wiring. If an extension cord must be used, make sure it is of the "polarized" type.

Since the chassis of this receiver is connected to one side of the AC supply during operation, service should not be attempted by anyone not familiar with the precautions necessary when working on these types of equipment.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

When removing springs or spring mounted parts from the tuner, tuner cluster or chassis, shatterproof goggles must be worn. Keep others without shatterproof goggles away.

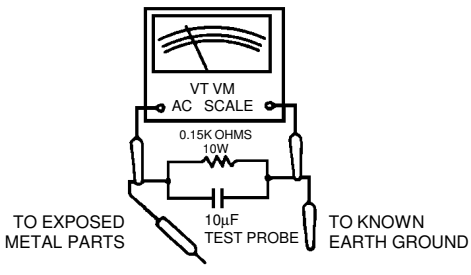
Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Replace all protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (antenna, cabinet metal, screw heads, knobs and/or shafts, escutcheon, etc.) in the following manner.

Plug the AC line cord directly into a 120V AC receptacle. (Do not use an Isolation Transformer during these checks.) All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a nonpolarized adapter plug must be used only for the purpose of completing these checks.)

If available, measure current using an accurate leakage current tester. Any reading of 0.35mA or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

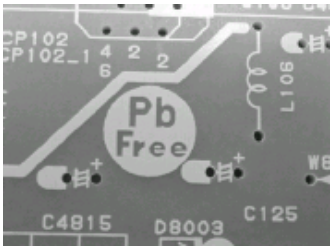
If a reliable leakage current tester is not available, this alternate method of measurement should be used. Using two clip leads, connect a 1500 ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with a known earth ground, such as a water pipe or conduit and the metal part to be checked. Use a VTVM or VOM with 1000 ohms per volt, or higher, sensitivity to measure this AC voltage drop across the resistor. Any reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.



ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 86°F~104°F(30°C~40°C) higher.
  Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
  In case of using high temperature soldering iron, please be careful not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

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GENERAL SPECIFICATIONS

G-1	**TV System**	LCD	LCD Size / Visual Size		18.50 inch / 470.1mmV
			LCD Type		Color TFT LCD
			Number of Pixels		1366(H) x 768(V)
			View Range	Left/Right	85/85 degree
				Up/Down	80/80 degree
			Bright Dot		n≤3
			Zero Bright Dot Ratio		70%
		Color System			NTSC
		Speaker			2 Speaker
			Position		Front
			Size		1.0 x 2.7 inch
			Impedance		8 ohm
		Sound Output	Max		1.0W + 1.0W
			10%(Typical)		---
G-2	**Tuning System**	Broadcasting System	Analog		US System M
			Digital		ATSC(8VSB)/QAM
		Tuner and Receive CH	System		1Tuner
			Destination		US (W/CABLE)
		CH Coverage			2~69, 4A, A-5~A-1, A~I, J~W, W+1~W+94
		Intermediate Frequency	Digital		44.00MHz
			Analog	Picture(FP)	45.75MHz
				Sound(FS)	41.25MHz
				FP-FS	4.50MHz
		Preset CH			No
		Stereo/Dual TV Sound			US-Stereo
		Tuner Sound Muting			Yes
G-3	**Signal**	Video Signal	Input Level		1 V p-p/75 ohm
			Output Level		--
			S/N Ratio (Weighted)		--
			Horizontal Resolution at DVD Mode		--
					--
		RGB Signal	Output Level		--
		Audio Signal	Input Level		-8.0dBm/50k ohm
			Output Level	at DVD	--
				at TV	--
					--
			Digital Output Level		0.5 V p-p/75 ohm
			S/N Ratio at DVD (Weighted)		--
			Harmonic Distortion		--
			Frequency Response :	at DVD	--
				at Video CD	--
				at SVCD	--
				at CD	--
G-4	**Power**	Power Source	AC		120V, 60Hz
			DC		--
		Power Consumption		at AC	29W at 120V 60Hz
				at DC	--
			Stand by (at AC)		0.8W at 120V 60Hz
			Energy Star		Yes
			Per Year		-- kWh/Year
		Protector	Power Fuse		Yes
			Safety Circuit		Yes
			IC Protector(Micro Fuse)		Yes
G-5	**Regulation**		Safety		UL(UL60065_7th)
			Radiation		FCC
			Laser		--
G-6	**Temperature**		Operation		+5°C ~ +40°C
			Storage		-20°C ~ +60°C
			Space Around Unit		10cm (4inch)
G-7	**Operating Humidity**				Less than 80% RH
G-8	**Clock and Timer**	Clock			No
		Sleep Timer	Max Time		120 Min
		On Timer	Program		No
		Off Timer	Program		No
		Game Timer			No
		Wake Up Timer			No
		Timer Back-up (at Power Off Mode)	more than		-- Min Sec
G-9	**Remote Control**	Unit			RC-RC
		Glow in Dark Remocon			No
		Remocon Format			ORION
		Format			NEC
		Custom Code			86-05 h
		Power Source	Voltage(D.C)		3V
			UM size x pcs		UM-4 x 2 pcs
		Total Keys			27 Keys
		Keys	Power		Yes
			1		Yes
			2		Yes

GENERAL SPECIFICATIONS

			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			-	Yes
			Recall (Quick View)	Yes
			Sleep	Yes
			Mute	Yes
			CH+ / Up	Yes
			CH- / Down	Yes
			VOL+ / Right	Yes
			VOL- / Left	Yes
			Menu	Yes
			Reset	No
			Exit	Yes
			Enter	Yes
			Input Select	Yes
			CCD (Closed Caption)	Yes
			Display	Yes
			Zoom (Picture Size)	Yes
			FAV +	No
			FAV -	No
			Audio	Yes
G-10	**Features**	Auto Shut Off		Yes
		Auto Search		No
		Power On Memory		Yes
		Comb Filter		Yes 3 -D
		Game Position		No
		Auto Setup(Language/CH Program)		Yes
		Picture Setting(TV)		Yes
			Picture Preference	Yes
			Brightness , Contrast , Color	Yes
			Tint	Yes
			Sharpness	Yes
			Color Temperature	Yes
			DNR	Yes
			Backlight	Yes
		Picture Setting(PC)		Yes
			HOR Position , VER Position	Yes
			Phase, Clock	Yes
			Red, Green, Blue	No
			Auto Adjust	Yes
		Audio	MTS	Yes
			Tone Control (Bass/Treble/Balance)	Yes
			Stable Sound	No
			Surround	Yes
			BBE	No
			SRS WOW (SRS 3D/Focus/Tru Bass)	No
			Variable Audio Out	No
		Tuning	CH Program	Yes
			Air/Cable	Yes
			ADD/DELETE	Yes
		Label	CH Label	Yes
			Video Label	Yes
		Favorite CH		No
		V-Chip		Yes
			Type	USA Type
		RRT Setup		Yes
		Lock	Hotel Lock	No
			Channel Lock	No
			Video Lock	No
			Panel Lock	No
		Menu Language		English
		DBC (Dynamic Backlight Control)		No
		Signal Meter (DTV Signal)		Yes
		Closed Caption		Yes
		CC Advanced		Yes
		V-Chip Clear		Yes
		Picture Size		Yes
		HD Zoom		Yes
		Film Mode		Yes
		Aspect		No
		PFC(Power Factor circuit)		No

GENERAL SPECIFICATIONS

		Freeze frame		No
		PIP/POP		No
		Direct Input Selection		Yes
		Digital Out	Dolby Digital	Yes
			MPEG	No
			PCM	Yes
			DTS	No
		PC Monitor Input		Yes
			VGA (640x480)	Yes (60,72,75Hz)
			VGA (720x400)	Yes (70Hz)
			WVGA (848x480)	No
			SVGA (800x600)	Yes (56,60,72,75Hz)
			XGA (1024x768)	Yes (60,70,75Hz)
			WXGA (1280x768)	Yes (60Hz)
			WXGA (1280x720)	Yes (60Hz)
			WXGA (1360x768)	Yes (60Hz)
			SXGA (1280x1024)	No
		HDMI Input		No
			VGA (640×480)	No
			720×480i (4:3)	No
			720×480i (16:9)	No
			720×480p (4:3)	No
			720×480p (16:9)	No
			720×576i (4:3)	No
			720×576i (16:9)	No
			720×576p (4:3)	No
			720×576p (16:9)	No
			1280×720p	No
			1920×1080i	No
			1920×1080p	No
			CEC (ORION Standard)	No
			Deep Color	No
			xvYCC	No
		DVI to HDMI Input	VGA (640x480)	No
			VGA (720x400)	No
			WVGA (848x480)	No
			SVGA (800x600)	No
			XGA (1024x768)	No
			WXGA (1280x768)	No
			WXGA (1280x720)	No
			WXGA (1360x768)	No
			SXGA (1280x1024)	No
		Component Input		Yes
			720×480i (4:3)	Yes (60Hz)
			720×480i (16:9)	Yes (60Hz)
			720×480p (4:3)	Yes (60Hz)
			720×480p (16:9)	Yes (60Hz)
			720×576i (4:3)	No
			720×576i (16:9)	No
			720×576p (4:3)	No
			720×576p (16:9)	No
			1280×720p	Yes (60Hz)
			1920×1080i	Yes (60Hz)
			1920×1080p	No
		Wall Mount	Size W x H(mm)	Yes (100 x 100)
			Screw Size	M4 x 10
		Stand	Tilt	No
			Swievel	No
G-11	**Accessories**	Owner's Manual	Language	English
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Rod Antenna		No
			Poles	--
			Terminal	--
		Loop Antenna		No
			Terminal	--
		U/V Mixer		No
		DC Car Cord (Center+)		No
		Guarantee Card		No
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Facility List		No
		Important Safeguard		No
		Dew/AHC Caution Sheet		No
		Quick Set-up Sheet		No
		Battery		Yes
			UM size x pcs	UM-4 x 2 pcs

GENERAL SPECIFICATIONS

				OEM Brand	No
		AC Adapter			No
		AC Cord (for AC Adapter)			No
		AC Cord			Yes
		AV Cord (2Pin-1Pin)			No
		Registration Card (NDL Card)			No
		300 to 75ohm Antenna Adapter			No
		Sheet Information (FCC)			No
		Sheet Information (Return)			Yes
		Sheet Information (HDMI)			No
		Stand			Yes
		Stand Screw???			Yes (2pcs)
G-12	**Interface**	Switch	Side	Power (Tact)	Yes
				Channel Up/Menu Up	Yes
				Channel Down/Menu Down	Yes
				Volume Up/Menu >	Yes
				Volume Down/Menu <	Yes
				Menu	Yes
				Play	No
				Eject	No
				Skip+, Search+	No
				Skip-, Search-	No
				Still/Pause	No
				Stop	No
				Main Power SW	No
				Input Select/Enter	Yes
			Rear	Main Power SW	No
		Indicator		Stand-By	Yes (Red)
				Power Wake Up	No
				On Timer	No
		Terminals	Rear	Video Input 1	RCA x 1
				Audio Input 1	RCA x 2(L/MONO, R)
				S - Input 1	Yes
				Video Input 2	No
				Audio Input 2	No
				S - Input 2	No
				Video Output	No
				Audio Output	No
				Component Input 1	RCA x 3
				Analog Audio	RCA x 2(L/MONO, R)
				Component Input 2	No
				Analog Audio	No
				HDMI Input 1	No
				Analog Audio	No
				HDMI Input 2	No
				Analog Audio	No
				Sub Woofer Out	No
				PC Monitor Input	Yes
				Analog Audio	Mini Pin Jack(φ3.5), STEREO
				Digital Audio Output	Coaxial
				DC Jack (Center +)	No
				VHF/UHF Antenna Input	F Type
				Video Input 3	No
				Audio Input 3	No
				S - Input 3	No
				Other Terminal	No
				AC Inlet	Yes
G-13	**Set Size**			Approx. W x D x H (mm)	472 x 174 x 362
				w/o Handle, Stand Approx. W x D x H (mm)	472 x 64 x 328
G-14	**Weight**			Net (Approx.)	3.8kg (8.4lbs)
				Net w/o Handle, Stand (Approx.)	3.5kg (7.7lbs)
				Gross (Approx.)	5.0kg (11.1lbs)
				Gross w/Master Carton (Approx.)	--- kg (--- lbs)
G-15	**Carton**	Master Carton			No
				Content	--- Sets
				Material	--- / ---
				Dimensions W x D x H(mm)	---
				Description of Origin	---
		Gift Box		Material	Single/White
				W/Color Photo Label	No
				W/Handle	No
				Dimensions W x D x H(mm)	542 x 426 x 147
				Description of Origin	Yes
		Drop Test			1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	80
		Container Stuffing (40' container)			1852 Sets/40' container
		w/Pallet			No
		w/Wrapping			No

GENERAL SPECIFICATIONS

G-16	**Material**	Cabinet	Front	PS 94V0 NON-DECABROM
			Rear	PS 94V0 NON-DECABROM
			Jack Panel	--
		PCB	Non-Halogen Demand	No
			Eyelet Demand	Yes
G-17	**Environment**	Environmental standard requirement		Green procurement of ORION
		Pb-free		Phase3(Phase3A)
			Measures for Whisker	Yes

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

CAUTION
Be careful not to remove the LVDS cable forcibly, because the LVDS cable may be damaged.

1-1: STAND ASS'Y (Refer to Fig. 1-1)

1. Remove the 2 screws (1).
2. Remove the Stand Ass'y in the direction of arrow.

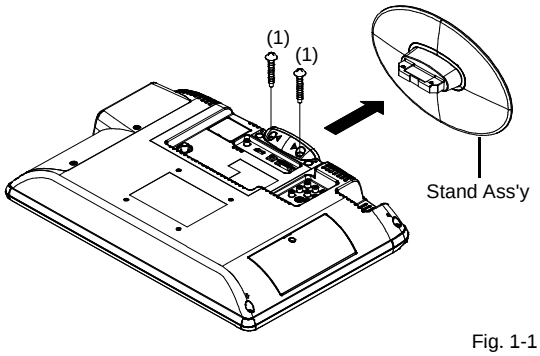


Fig. 1-1

1-2: COVER INVERTER (Refer to Fig. 1-2)

1. Remove the screw (1).
2. Remove the Cover Inverter in the direction of arrow.
3. Disconnect the following connectors: **(CP7001 and CP7002).**
4. Remove the 2 screws (2)
5. Remove the 6 screws (3)

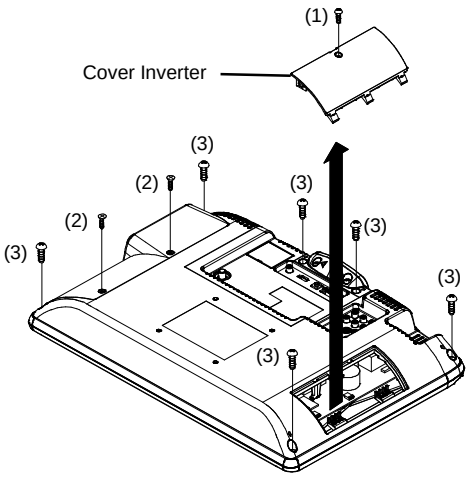


Fig. 1-2

1-3: FRONT CABI ASS'Y and LCD PANEL (Refer to Fig. 1-3)

1. Turn up set and put the Front Cabi Ass'y of LCD on the top.
2. Remove the Front Cabi Ass'y in the direction of arrow (A).
3. Disconnect the following connector: **(CD2801).**
4. Remove the LCD Panel in the direction of arrow (B).

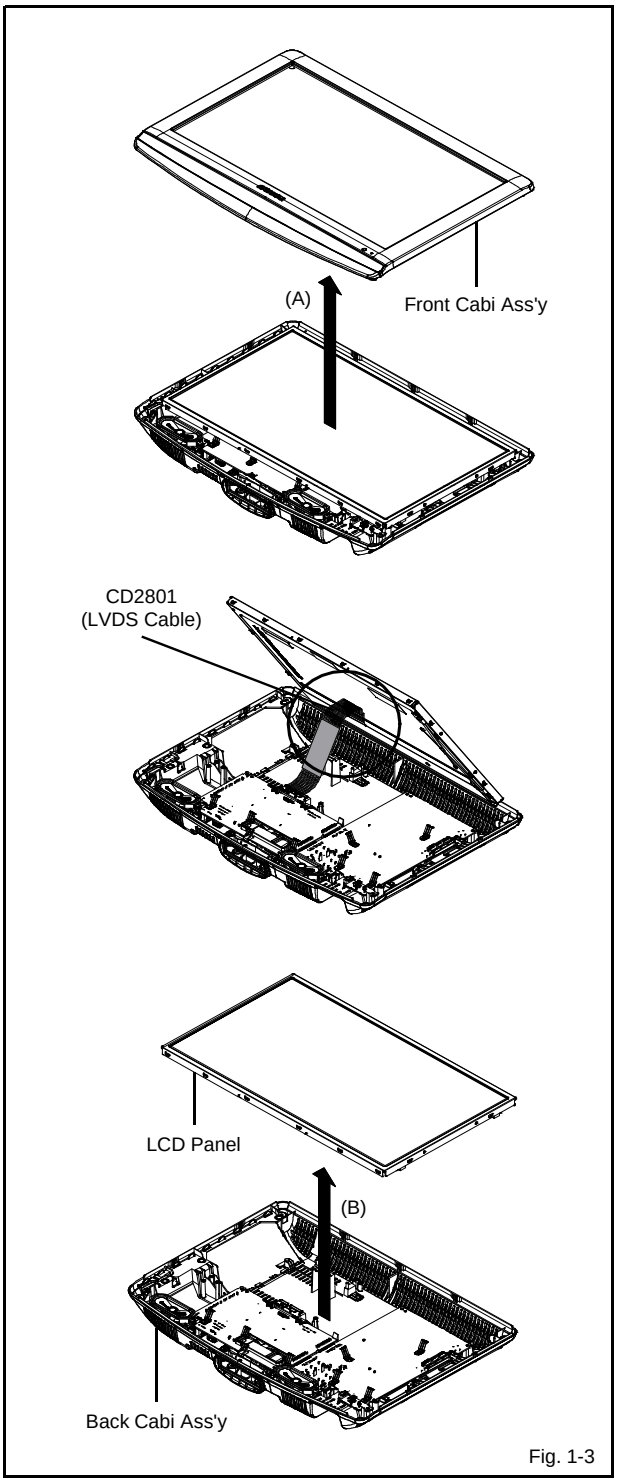


Fig. 1-3

DISASSEMBLY INSTRUCTIONS

1-4: DIGITAL PCB (Refer to Fig. 1-5)

1. Remove the 2 screws (1).
2. Remove the Holder LCD in the direction of arrow (A).
3. Remove the 2 screws (2).
4. Remove the Holder LVDS-3 in the direction of arrow (B).
5. Remove the 2 screws (3).
6. Disconnect the following connectors:
   (CP501, CP2201 and CP8101).
7. Remove the Digital PCB in the direction of arrow (C).

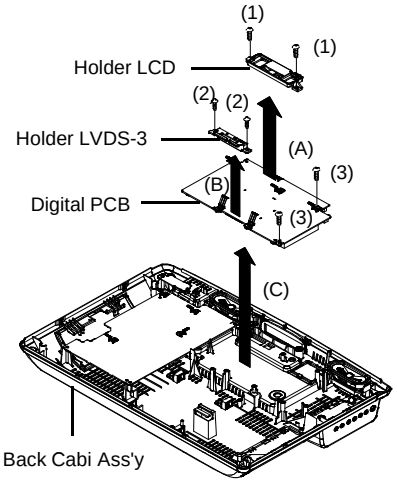


Fig. 1-4

1-5: POWER PCB, REMOCON PCB and OPERATION PCB (Refer to Fig. 1-5)

1. Disconnect the following connector: **(CP7601).**
2. Remove the 7 screws (1).
3. Remove the Power PCB in the direction of arrow (A).
4. Remove the screw (2).
5. Remove the Remocon PCB in the direction of arrow (B).
6. Push 9 supports (3).
7. Remove the Panel Side Ass'y in the direction of arrow (C).
8. Remove the 2 screws (4).
9. Remove the Operation PCB in the direction of arrow (D).

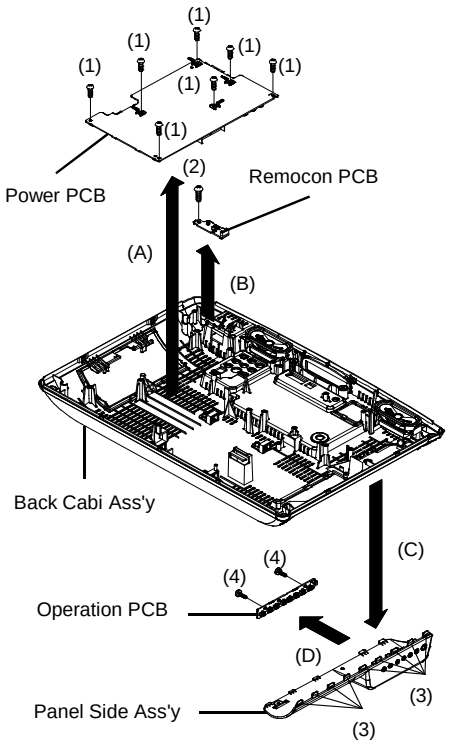


Fig. 1-5

DISASSEMBLY INSTRUCTIONS

2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 2-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

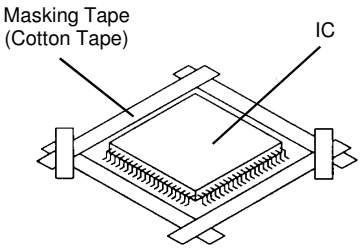


Fig. 2-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 2-2.)**

   NOTE

   Do not rotate or move the IC back and forth , until IC can move back and forth easily after desoldering the leads completely.

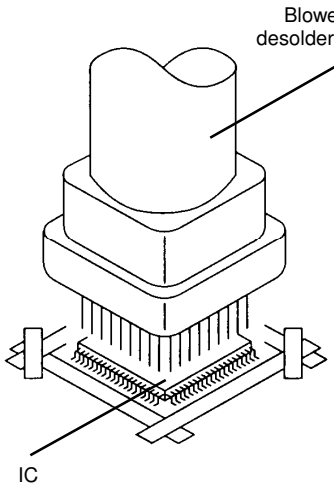


Fig. 2-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 2-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

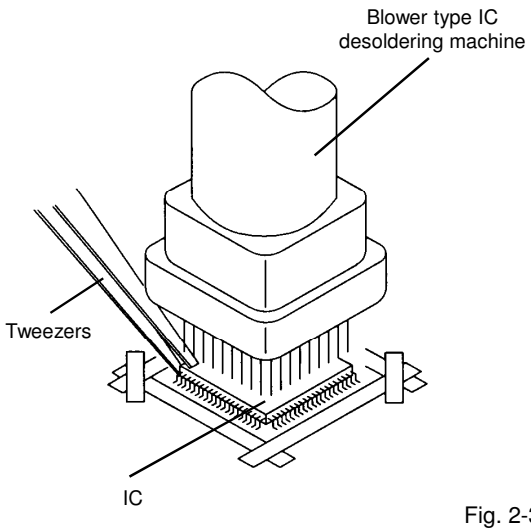


Fig. 2-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 2-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

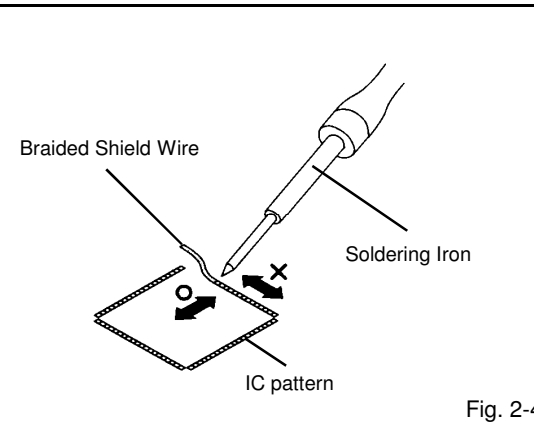


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 2-5.)**

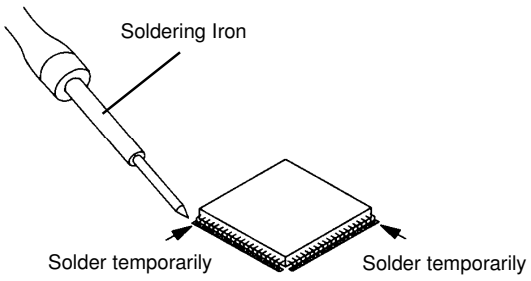


Fig. 2-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 2-6.)**

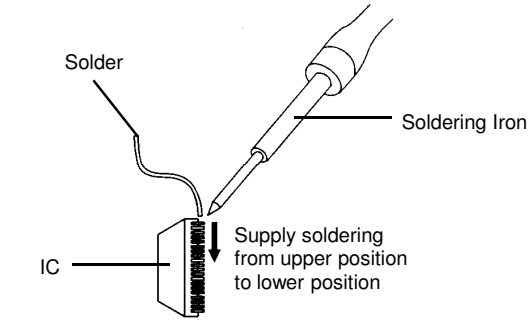


Fig. 2-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 2-7.)**

NOTE

Do not absorb the solder to excess.

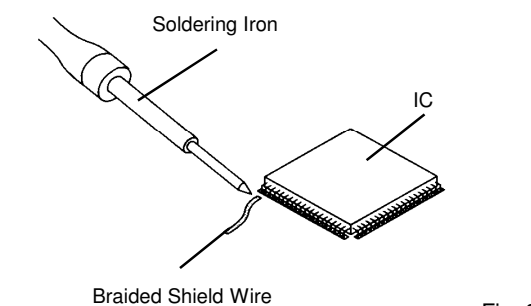


Fig. 2-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thintip Soldering Iron. **(Refer to Fig. 2-8.)**

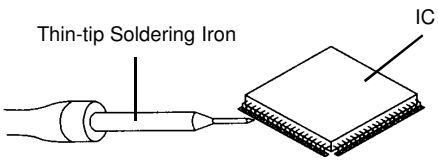


Fig. 2-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit and on the remote control for more than a the standard time in the appropriate condition. (See below chart.)

Set Condition	Set Key	Remocon Key	Standard Time	Operations
POWER ON	VOL. DOWN (Minimum)	0	2 sec.	Releasing of V-CHIP PASSWORD.
POWER ON	VOL. DOWN (Minimum)	1	2 sec.	Initialization of factory TV data. NOTE: If you set factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
POWER ON	VOL. DOWN (Minimum)	6	2 sec.	Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
POWER ON	VOL. DOWN (Minimum)	8	2 sec.	Check of the SUM DATA and MICON VERSION on the screen. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
POWER ON	VOL. DOWN (Minimum)	9	2 sec.	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

WHEN REPLACING EEPROM (MEMORY) IC

CONFIRMATION OF CHECK SUM, POWER ON TOTAL HOURS AND MICON VERSION

Initial total of MEMORY IC, POWER ON total hours and MICON VERSION can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".
Please refer to "CONFIRMATION OF INITIAL DATA" when SUM DATA is not corresponding.

1. Turn on the POWER, and set to the ALL mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(8)** on the remote control for more than 2 seconds.
4. After the confirmation of each check sum, turn off the power.

NOTE: The each item value might be different according to each set.

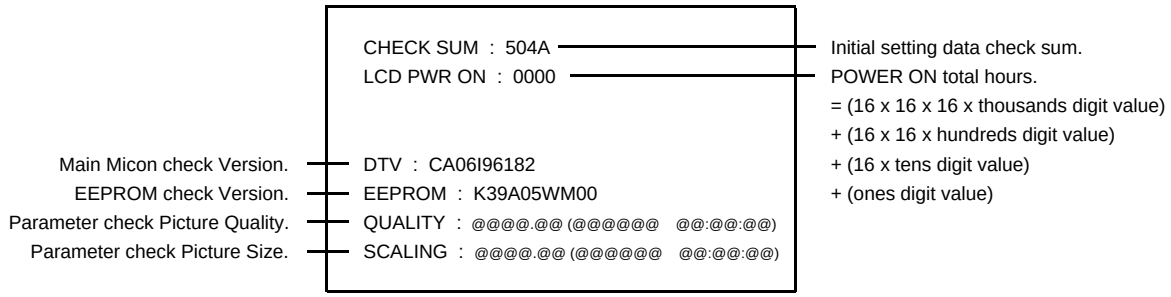

CHECK SUM : 504A
LCD PWR ON : 0000
Initial setting data check sum.
POWER ON total hours.
= (16 x 16 x 16 x thousands digit value)
+ (16 x 16 x hundreds digit value)
+ (16 x tens digit value)
+ (ones digit value)
Main Micon check Version.
DTV : CA06I96182
EEPROM check Version.
EEPROM : K39A05WM00
Parameter check Picture Quality.
QUALITY : @@@@.@@ (@@@@@@ @@:@@:@@)
Parameter check Picture Size.
SCALING : @@@@.@@ (@@@@@@ @@:@@:@@)

FIG. 1

CONFIRMATION OF INITIAL DATA

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to INITIAL SETTING TABLE (Attached "INITIAL DATA").

1. Turn on the POWER, and set to the ALL mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 2.

NOTE: No need to set data other position than 0D00~0EFF.

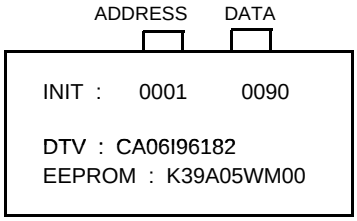


FIG. 2

4. ADDRESS is now selected and should "blink". Using the CH. UP/DOWN buton on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press VOL. UP/DOWN button to select DATA. When DATA is selected, it will "blink".
6. Again, step through the DATA using CH. UP/DOWN button until required DATA value has been selected.
7. Pressing VOL. UP/DOWN button will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 6 until all data has been checked.
9. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping.

10. Turn on the Power.
11. Set the VOLUME to minimum.
12. Press both VOL. DOWN button on the set and Channel button **(1)** on the remote control for more than 2 seconds.
13. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease**(YG6260M)** on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damage to the IC and Transistor).

Prepare the following measurement tools for electrical adjustments.

1. Pattern Generator

On-Screen Display Adjustment

1. Set the VOLUME to minimum.
2. Press the VOL. DOWN button on the set and the channel button **(9)** on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 1-1**.

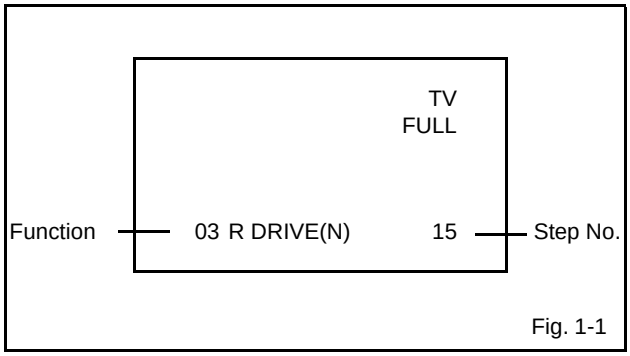


Fig. 1-1

3. Use the CH UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.
5. To display the adjustment screen for TV, AV,COMPONENT HDMI and PC mode, press the INPUT SELECT button on the remote control.
6. Receive the DIGITAL broadcasting.
7. To display the adjustment screen fo DTV mode, select the digital channel.
8. Press the VOL.DOWN buttom on the set and the channel (9) on the remote control for more than 2 seconds.

NO.	FUNCTION	NO.	FUNCTION
03	R DRIVE(N)	34	BRIGHTNESS MIN
04	R CUTOFF(N)	35	TINT
05	G DRIVE(N)	36	SHARP H1 MAX
06	G CUTOFF(N)	37	SHARP H1 MIN
07	B DRIVE(N)	38	SHARP H2 MAX
08	B CUTOFF(N)	39	SHARP H2 MIN
09	R DRIVE(C)	40	SHARP H3 MAX
10	R CUTOFF(C)	41	SHARP H3 MIN
11	G DRIVE(C)	42	SHARP H4 MAX
12	G CUTOFF(C)	43	SHARP H4 MIN
13	B DRIVE(C)	44	SHARP H5 MAX
14	B CUTOFF(C)	45	SHARP H5 MIN
15	R DRIVE(W)	46	SHARP V1 MAX
16	R CUTOFF(W)	47	SHARP V1 MIN
17	G DRIVE(W)	48	SHARP V2 MAX
18	G CUTOFF(W)	49	SHARP V2 MIN
19	B DRIVE(W)	50	CONTRAST CENTER
20	B CUTOFF(W)	51	CONTRAST MAX
29	BAK LIGHT CENT	52	CONTRAST MIN
30	BAK LIGHT MAX	53	COLOR CENTER
31	BAK LIGHT MIN	54	COLOR MAX
32	BRIGHTNESS CENT	55	COLOR MIN
33	BRIGHTNESS MAX	58	CONTRAST 40

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: WHITE BALANCE

1. Place the set in Aging Test for more than 30 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Press the INPUT SELECT button on the remote control to set to the AV mode.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select"R DRIVE (N)".
6. Press the UP/DOWN button on the remote control to select the "R CUTOFF (N)", "G DRIVE (N)", G CUTOFF (N), "B DRIVE (N)", "B CUTOFF (N)", R DRIVE (C), "R CUTOFF (C)", "G DRIVE (C)", G CUTOFF (C), "B DRIVE (C)", "B CUTOFF (C)", R DRIVE (W), "R CUTOFF (W)", "G DRIVE (W)", G CUTOFF (W), "B DRIVE (W)" or "B CUTOFF (W)".
7. Adjust the LEF/RIGHT button on the remote control to whiten the R CUTOFF (N), G DRIVE (N), G CUTOFF (N), B DRIVE (N), B CUTOFF (N), R DRIVE (C), R CUTOFF (C), G DRIVE (C), G CUTOFF (C), B DRIVE (C), B CUTOFF (C), R DRIVE (W), R CUTOFF (W), G DRIVE (W), G CUTOFF (W), B DRIVE (W) and B CUTOFF (W) at each step tone sections equally.
8. Perform the above adjustments 6 and 7 until the white color is achieved.

ELECTRICAL ADJUSTMENTS

2-2: BRIGHTNESS CENT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select "BRIGHTNESS CENT".
4. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "130".
5. Check if the picture is normal.
6. Receive the color bar pattern. (VIDEO Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode.
8. Using the remote control, set the brightness and contrast to normal position.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select "BRIGHTNESS CENT".
10. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "131".
11. Check if the picture is normal.
12. Receive the color bar pattern. (S-VIDEO Input)
13. Press the INPUT SELECT button on the remote control to set to the AV(S) mode.
14. Using the remote control, set the brightness and contrast to normal position.
15. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select "BRIGHTNESS CENT".
16. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "131".
17. Check if the picture is normal.
18. Playback the DVD(480i) disc. (COMPONENT Input)
19. Press the INPUT SELECT button on the remote control to set to the COMPONENT mode.
20. Using the remote control, set the brightness and contrast to normal position.
21. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select "BRIGHTNESS CENT".
22. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "132".
23. Check if the picture is normal.
24. Playback the DVD(480p) disc. (COMPONENT Input)
25. Press the INPUT button on the remote control to set to the COMPONENT mode. Then perform the above adjustments 20~23.
26. Playback the DVD(720p) disc. (COMPONENT Input)
27. Press the INPUT button on the remote control to set to the COMPONENT mode. Then perform the above adjustments 20~23.
28. Playback the DVD(1080i) disc. (COMPONENT Input)
29. Press the INPUT SELECT button on the remote control to set to the COMPONENT mode. Then perform the above adjustments 20~23.

2-3: CONTRAST MAX

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(51)** on the remote control to select "CONTRANT MAX".
4. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "146".
5. Check if the picture is normal.
6. Receive the color bar pattern. (VIDEO Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode.
8. Using the remote control, set the brightness and contrast to normal position.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(51)** on the remote control to select "CONTRANT MAX".
10. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "152".
11. Check if the picture is normal.
12. Receive the color bar pattern. (S-VIDEO Input)
13. Press the INPUT SELECT button on the remote control to set to the AV(S) mode. Then perfrom the above adjustments 8~11.
14. Playback the DVD(480i) disc. (COMPONENT Input)
15. Press the INPUT SELECT button on the remote control to set to the COMPONENT mode.
16. Using the remote control, set the brightness and contrast to normal position.
17. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(51)** on the remote control to select "CONTRANT MAX".
18. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "151".
19. Check if the picture is normal.

ELECTRICAL ADJUSTMENTS

2-4: CONTRAST 40

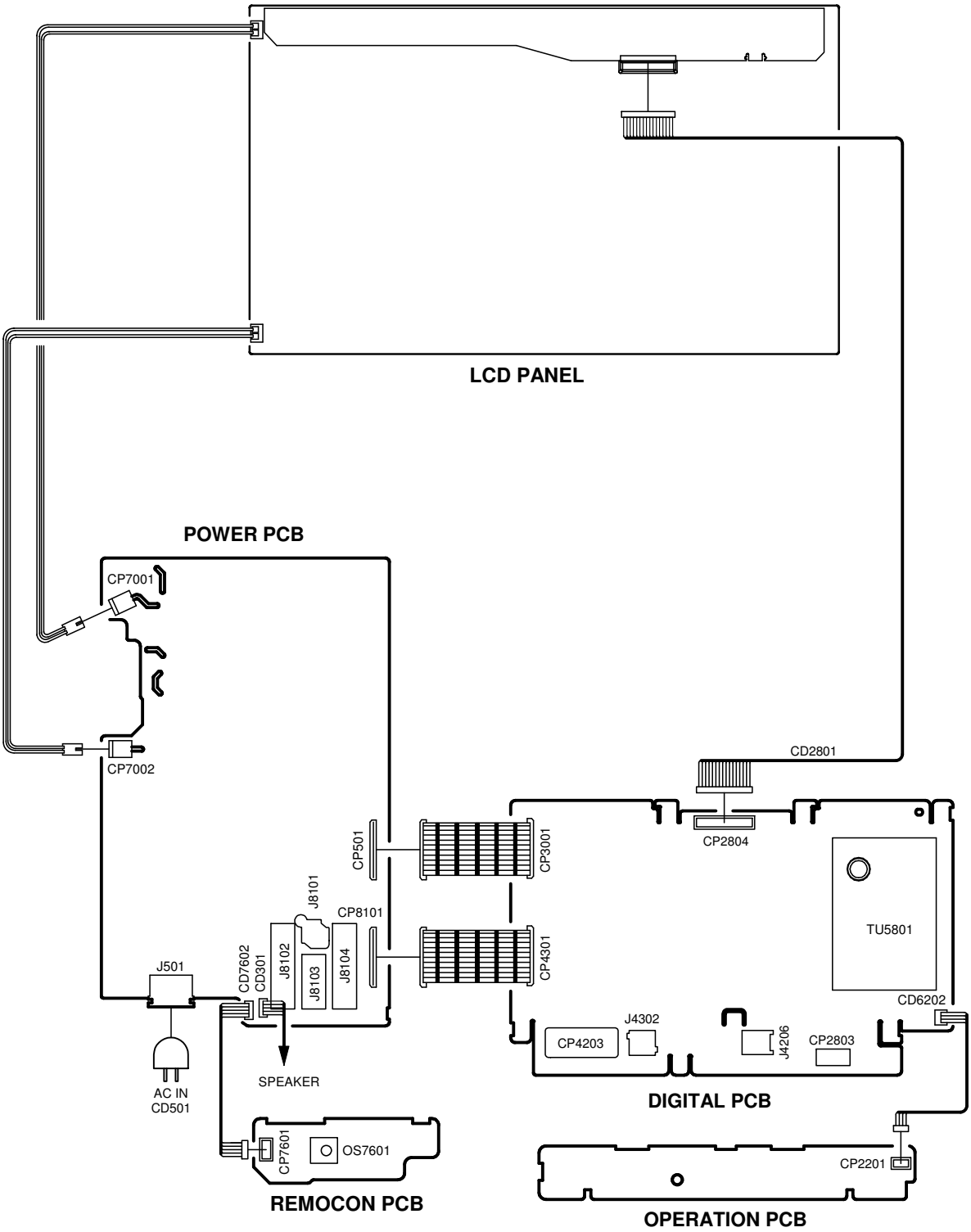
1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of Fig. 1-1 and press the channel button (58) on the remote control to select "CONTRAST 40".
4. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "138".
5. Check if the picture is normal.
6. Receive the color bar pattern. (VIDEO Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode.
8. Using the remote control, set the brightness and contrast to normal position.
9. Activate the adjustment mode display of Fig. 1-1 and press the channel button (58) on the remote control to select "CONTRAST 40".
10. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "144".
11. Check if the picture is normal.
12. Receive the color bar pattern. (S-VIDEO Input)
13. Press the INPUT SELECT button on the remote control to set to the AV(S) mode.
14. Using the remote control, set the brightness and contrast to normal position.
15. Activate the adjustment mode display of Fig. 1-1 and press the channel button (58) on the remote control to select "CONTRAST 40".
16. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "144".
17. Check if the picture is normal.
18. Playback the DVD(480i) disc. (COMPONENT Input)
19. Press the INPUT SELECT button on the remote control to set to the COMPONENT mode.
20. Using the remote control, set the brightness and contrast to normal position.
21. Activate the adjustment mode display of Fig. 1-1 and press the channel button (58) on the remote control to select "CONTRAST 40".
22. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "143".
23. Check if the picture is normal.

2-5: CONTRAST CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of Fig. 1-1 and press the channel button (50) on the remote control to select "CONTRAST CENTER".
4. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "160".
5. Check if the picture is normal.
6. Receive the color bar pattern. (VIDEO Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode.
8. Using the remote control, set the brightness and contrast to normal position.
9. Activate the adjustment mode display of Fig. 1-1 and press the channel button (50) on the remote control to select "CONTRAST CENTER".
10. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "160".
11. Check if the picture is normal.
12. Receive the color bar pattern. (S-VIDEO Input)
13. Press the INPUT SELECT button on the remote control to set to the AV(S) mode.
14. Using the remote control, set the brightness and contrast to normal position.
15. Activate the adjustment mode display of Fig. 1-1 and press the channel button (50) on the remote control to select "CONTRAST CENTER".
16. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "160".
17. Check if the picture is normal.
18. Playback the DVD(480i) disc. (COMPONENT Input)
19. Press the INPUT SELECT button on the remote control to set to the COMPONENT mode.
20. Using the remote control, set the brightness and contrast to normal position.
21. Activate the adjustment mode display of Fig. 1-1 and press the channel button (50) on the remote control to select "CONTRAST CENTER".
22. Press the VOL.UP/DOWN button on the remote control until the contrast step No. becomes "170".
23. Check if the picture is normal.

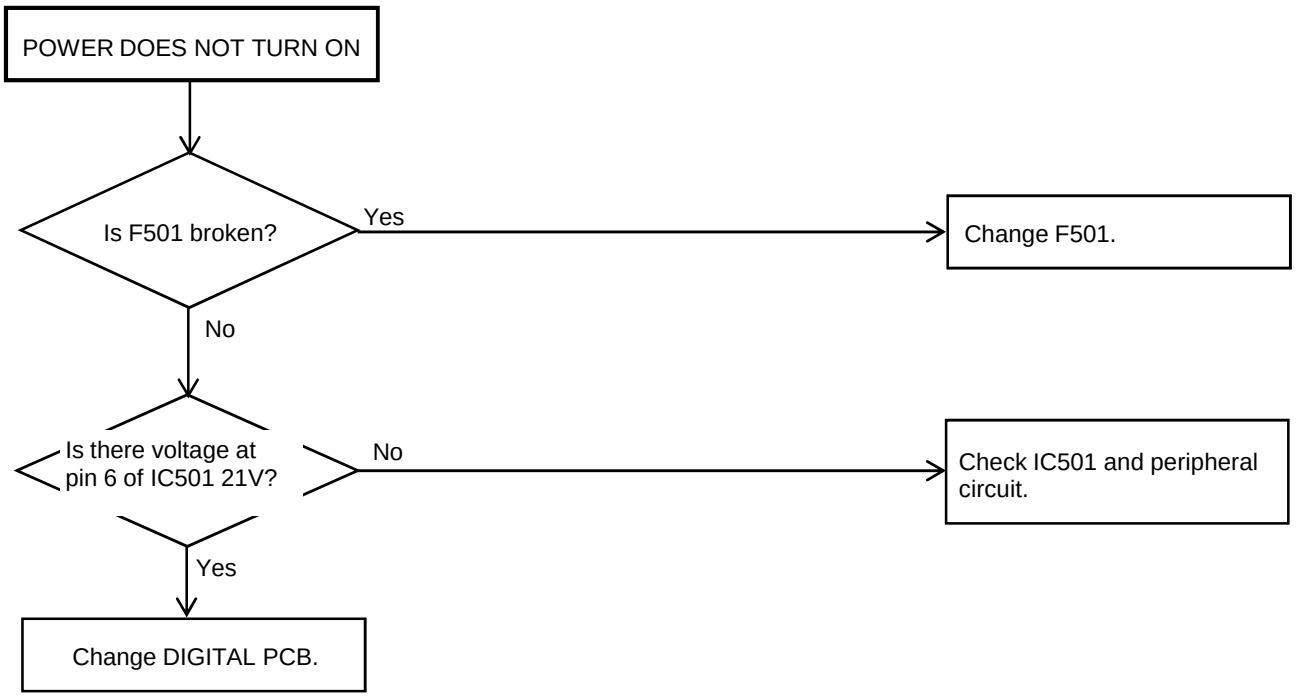
ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

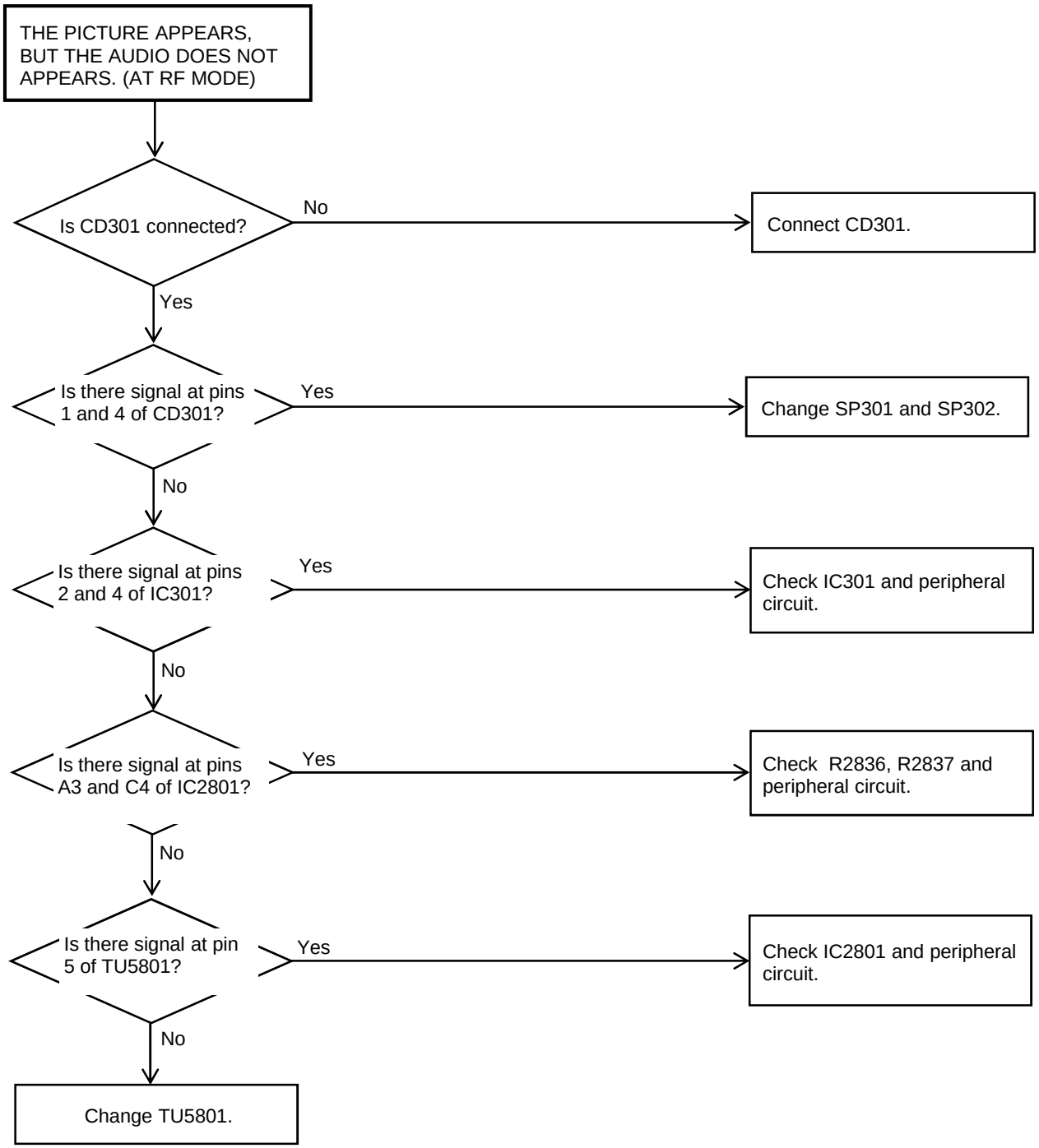


TROUBLESHOOTING GUIDE

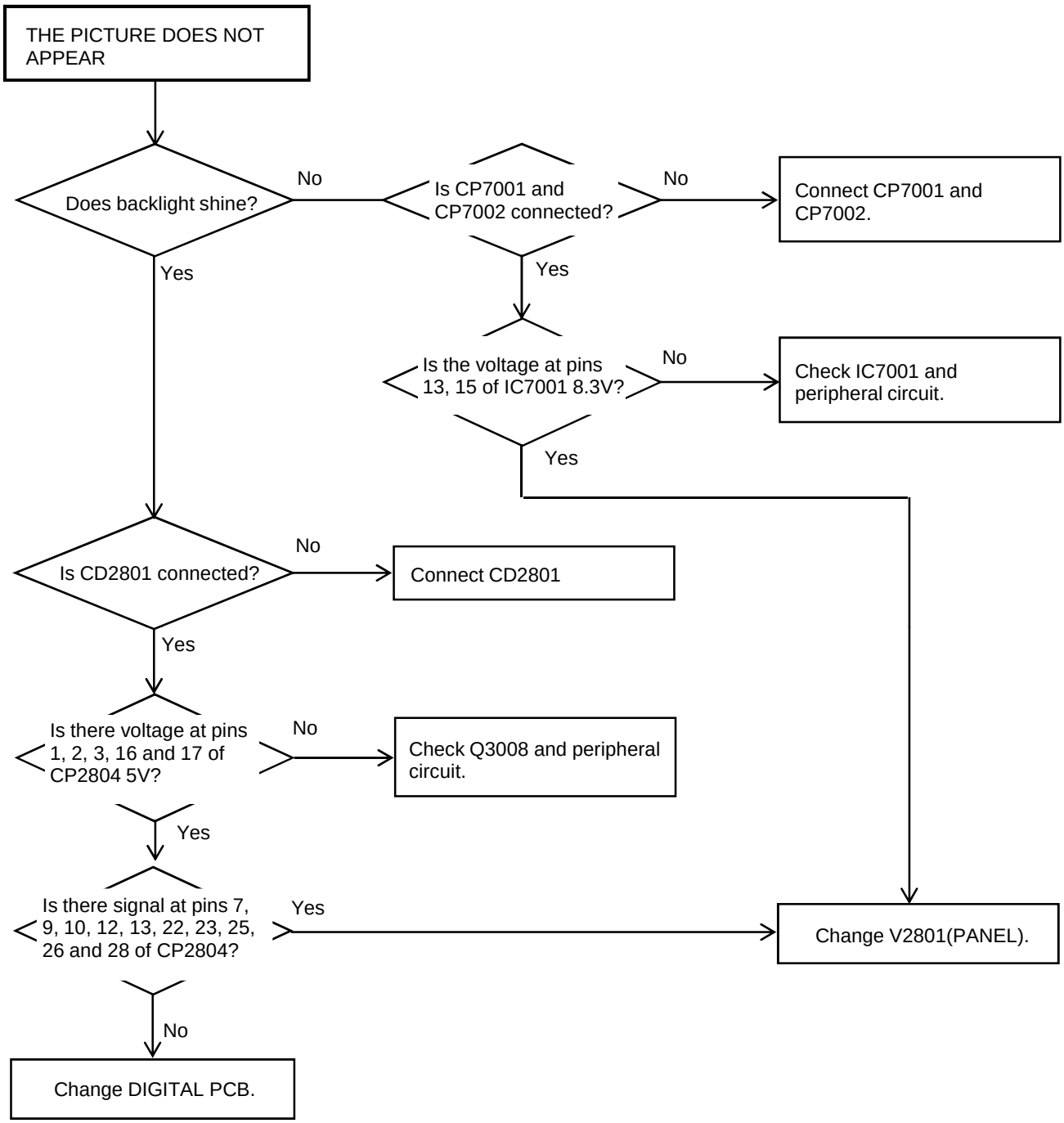
(LCD SECTION)



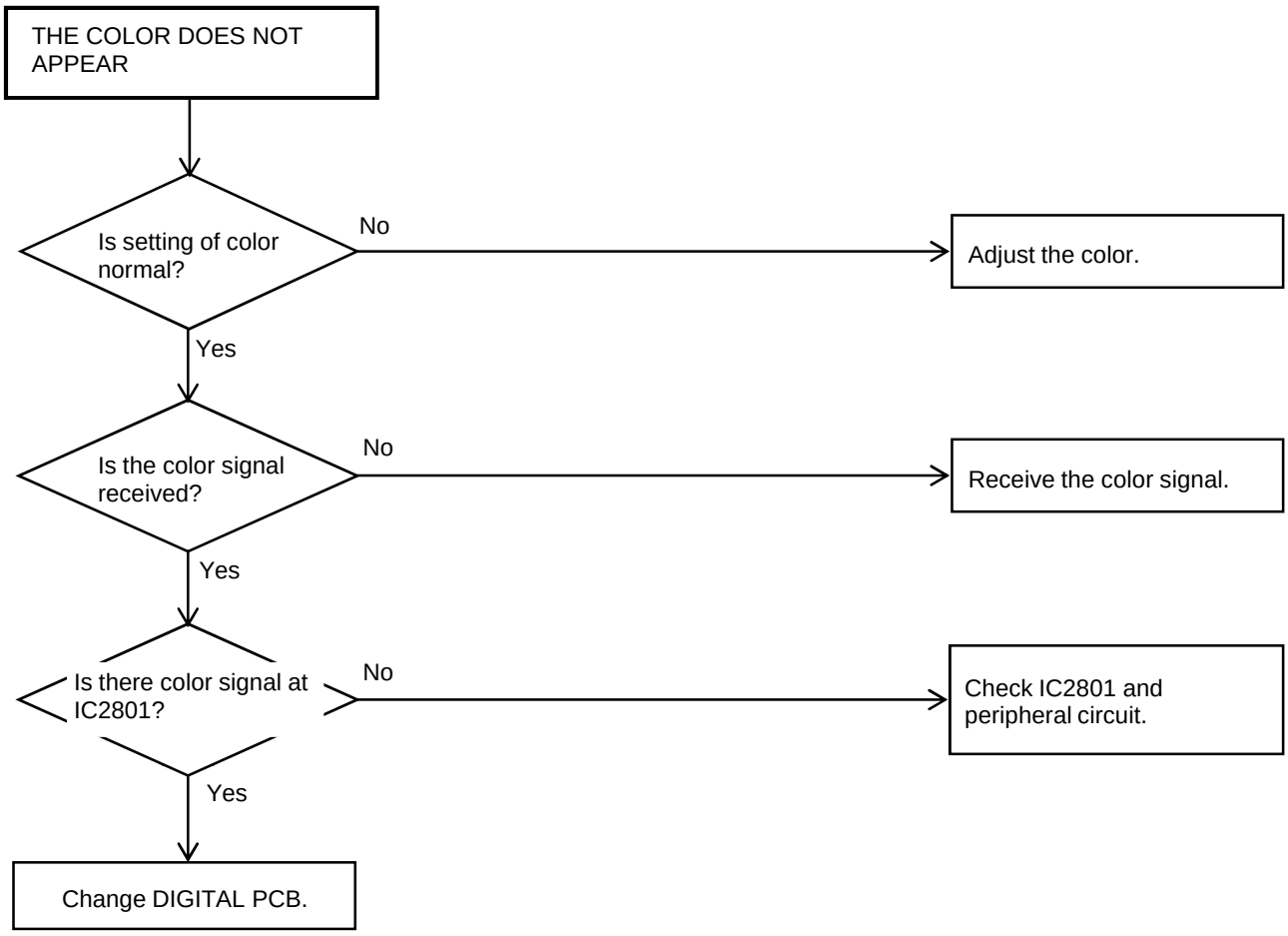
TROUBLESHOOTING GUIDE


THE PICTURE APPEARS, BUT THE AUDIO DOES NOT APPEARS. (AT RF MODE)
Is CD301 connected?
No
Connect CD301.
Yes
Is there signal at pins 1 and 4 of CD301?
Yes
Change SP301 and SP302.
No
Is there signal at pins 2 and 4 of IC301?
Yes
Check IC301 and peripheral circuit.
No
Is there signal at pins A3 and C4 of IC2801?
Yes
Check R2836, R2837 and peripheral circuit.
No
Is there signal at pin 5 of TU5801?
Yes
Check IC2801 and peripheral circuit.
No
Change TU5801.

TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE



IC DESCRIPTION

R8J04012BG(IC2801)

No.	Ball NO.	PIN NAME	I/O	DESCRIPTION
1	AB10	RESET_N	I	Reset in (Active Low)
2	AA12	XIN25	I	Main Clock in (25MHz)
3	AB12	XOUT25	O	Main Clock out (25MHz)
4	AB15	Unused	O	
5	AA15	Unused	I	
6	K3	Unused	O	
7	H4	Unused	O	
8	K4	Unused	O	
9	Y12	DVD_RESET	O	DVD Unit Reset Control (Active Low)
10	Y13	EXT_MUTE	I/O	Audio out Terminal Sound Mute (Active High)
11	AB11	S1_DET	I	S Connector Detect
12	J4	Unused	O	
13	J3	SPDIF_OUT	O	SPDIF out
14	H1	Unused	O	
15	H3	SP_MUTE	I/O	Speaker Sound AMP Mute (Active High)
16	G2	Unused	O	
17	AB13	Unused	O	
18	AB14	DVD_RXD	I	DVD Unit Control UART Rx
19	AA13	DVD_TXD	O	DVD Unit Control UART Tx
20	AB19	Unused	O	
21	AB20	Unused	O	
22	AA19	Unused	O	
23	E1	TU_I2C_SCL	O	Tuner Control I2C Bus Clock
24	F2	TU_I2C_SDA	I/O	Tuner Control I2C Bus Data
25	Y18	E2P_I2C_SCL	O	E2PROM Control I2C Bus Clock
26	W15	E2P_I2C_SDA	I/O	E2PROM Control I2C Bus Data
27	F1	IF_AGC	I	Tuner IF AGC for Digital
28	G3	Unused	O	
29	G1	Unused	O	
30	U21	LIGHT_CTL	O	Backlight Control (PWM)
31	U22	POWER_FAIL	I	Power Failure Detect (Active Low)
32	AB21	DEBUG_RXD	I	For Debug
33	AA20	DEBUG_TXD	O	For Debug
34	AB16	SFCK	O	Serial Flash Clock
35	Y14	SFTX	O	Serial Flash Transmit
36	W13	SFRX	I	Serial Flash Receive
37	AA14	SFWP_N	I/O	Serial Flash Write Protect
38	AA16	SFCS_N	I/O	Serial Flash Chip Select
39	Y15	Unused	O	
40	AB17	USB_P	I/O	For Software Update
41	AA17	USB_M	I/O	For Software Update
42	Y16	Unused	O	
43	AB18	Unused	O	
44	W14	Unused	O	
45	Y17	Unused	O	
46	AA18	Unused	O	
47	V20	ASEBRKAK_N	O	E10A interface
48	V21	ASEMD0	I	E10A interface
49	V22	TRST_N	I	JTAG Interface
50	U20	TCK	I	JTAG Interface
51	T19	TMS	I	JTAG Interface
52	V19	TDI	I	JTAG Interface
53	U19	TDO	O	JTAG Interface
54	W18	PANEL_POWER-H	O	LCD Panel Power Control (Active High)
55	W17	HDMI_HPD1	O	HDMI1 Hot Plug Control (Active High)
56	T20	SYS_POWER-H	O	System Power Control (Active High)
57	W22	TUNER_AFT	I	Tuner AFT Voltage in
58	W21	Unused	O	
59	Y22	Unused	O	
60	W20	Unused	O	

No.	Ball NO.	PIN NAME	I/O	DESCRIPTION
61	Y21	KEY_A	I	Local Key Detect A
62	Y20	KEY_B	I	Local Key Detect B
63	AA22	DISC_IN_DET	I	Disc In Detect
64	W19	Unused	O	
65	H2	STANDBY-L	O	Power LED Control (Active Low)
66	AA21	LIGHT_POWER-H	O	Backlight Power Control (Active High)
67	J2	Unused	O	
68	T21	Unused	O	
69	Y19	REMOCON_IN	I	IR in for Remote Control
70	W16	HDMI_HPD2	O	HDMI2 Hot Plug Control (Active High)
71	J1	Unused	O	
72	M1	I2C_OFF	I	I2C Bus Stop Mode Control (Active Low)
73	L1	AV_SW0	O	Audio Mode Switching Control (AV_SW0, AV_SW1) (Low, Low) DVD (Low, High) Video2, Component (High, Low) PC, HDMI (High, High) Tuner, Video1
74	M2	AV_SW1	O	Refer to AV_SW0 (Ball No.L1)
75	L2	Unused	O	
76	K1	Unused	O	
77	K2	DVD-H	O	DVD Mode Switching Control (Active High)
78	W12	Unused	I	Always Pull-Up
79	AA10	Unused	O	Always Open
80	Y10	Unused	O	
81	AA11	Unused	I	Always Pull-Down
82	AB8	SDA12	O	DDR2 Interface
83	AB5	SDA11	O	DDR2 Interface
84	AB6	SDA10	O	DDR2 Interface
85	AA7	SDA9	O	DDR2 Interface
86	AA5	SDA8	O	DDR2 Interface
87	AA8	SDA7	O	DDR2 Interface
88	AB4	SDA6	O	DDR2 Interface
89	AA6	SDA5	O	DDR2 Interface
90	AA4	SDA4	O	DDR2 Interface
91	AB7	SDA3	O	DDR2 Interface
92	W5	SDA2	O	DDR2 Interface
93	W7	SDA1	O	DDR2 Interface
94	AB3	SDA0	O	DDR2 Interface
95	Y8	SDBA2	O	DDR2 Interface
96	Y6	SDBA1	O	DDR2 Interface
97	W9	SDBA0	O	DDR2 Interface
98	R5	SDVREF0	-	DDR2 Interface
99	V7	SDVREF1	-	DDR2 Interface
100	AA2	SDODT	O	DDR2 Interface
101	Y2	SDCLK	O	DDR2 Interface
102	AA1	SDCLK_N	O	DDR2 Interface
103	W8	SDCKE	O	DDR2 Interface
104	AB2	SDRAS	O	DDR2 Interface
105	AA3	SDCAS	O	DDR2 Interface
106	W6	SDWE	O	DDR2 Interface
107	Y4	SDCS	O	DDR2 Interface
108	N3	SDDM1	O	DDR2 Interface
109	P2	SDDQ15	I/O	DDR2 Interface
110	N4	SDDQ14	I/O	DDR2 Interface
111	T2	SDDQ13	I/O	DDR2 Interface
112	R4	SDDQ12	I/O	DDR2 Interface
113	P4	SDDQ11	I/O	DDR2 Interface
114	R2	SDDQ10	I/O	DDR2 Interface
115	R3	SDDQ9	I/O	DDR2 Interface
116	R1	SDDQ8	I/O	DDR2 Interface
117	U3	SDDM0	I/O	DDR2 Interface
118	N2	SDDQS1	I/O	DDR2 Interface
119	P1	SDDQS1_N	I/O	DDR2 Interface
120	V1	SDDQ7	I/O	DDR2 Interface
121	T4	SDDQ6	I/O	DDR2 Interface

No.	Ball NO.	PIN NAME	I/O	DESCRIPTION
122	W2	SDDQ6	I/O	DDR2 Interface
123	V4	SDDQ5	I/O	DDR2 Interface
124	W3	SDDQ4	I/O	DDR2 Interface
125	W1	SDDQ3	I/O	DDR2 Interface
126	U4	SDDQ2	I/O	DDR2 Interface
127	V2	SDDQ1	I/O	DDR2 Interface
128	U2	SDDQ0	I/O	DDR2 Interface
129	U1	SDDQS0_N	I/O	DDR2 Interface
130	AA9	DD_CL	I/O	-
131	P21	LV0CKOP	O	LVDS clock out+ #0
132	P22	LV0CKOM	O	LVDS clock out- #0
133	R21	LV0OUT4P	O	LVDS data out 4+ #0
134	R19	LV0OUT3P	O	LVDS data out 3+ #0
135	P19	LV0OUT2P	O	LVDS data out 2+ #0
136	N21	LV0OUT1P	O	LVDS data out 1+ #0
137	N19	LV0OUT0P	O	LVDS data out 0+ #0
138	R22	LV0OUT4M	O	LVDS data out 4- #0
139	R20	LV0OUT3M	O	LVDS data out 3- #0
140	P20	LV0OUT2M	O	LVDS data out 2- #0
141	N22	LV0OUT1M	O	LVDS data out 1- #0
142	N20	LV0OUT0M	O	LVDS data out 0- #0
143	L19	LV1CKOP	O	LVDS clock out+ #1
144	L20	LV1CKOM	O	LVDS clock out- #1
145	M21	LV1OUT4P	O	LVDS data out 4+ #1
146	L21	LV1OUT3P	O	LVDS data out 3+ #1
147	K21	LV1OUT2P	O	LVDS data out 2+ #1
148	K19	LV1OUT1P	O	LVDS data out 1+ #1
149	J21	LV1OUT0P	O	LVDS data out 0+ #1
150	M22	LV1OUT4M	O	LVDS data out 4- #1
151	L22	LV1OUT3M	O	LVDS data out 3- #1
152	K22	LV1OUT2M	O	LVDS data out 2- #1
153	K20	LV1OUT1M	O	LVDS data out 1- #1
154	J22	LV1OUT0M	O	LVDS data out 0- #1
155	M19	REFR	P	External resistance
156	B15	SSIN1	I	Video sync slicer input #1
157	A15	SSIN2	I	Video sync slicer input #1
158	C12	LPF	P	Video PLL low pass filter
159	B13	VIN1A	I	Video in
160	A13	VIN2A	I	Video in
161	B12	VIN3A	I	Video in
162	A12	VIN4A	I	Video in
163	A11	VIN5A	I	Video in
164	B11	VIN6A	I	Video in
165	C11	VREFA	P	Video in
166	D10	REXT	P	External resistance
167	A10	VIN1B	I	Video in
168	B10	VIN2B	I	Video in
169	A9	VIN3B	I	Video in
170	B9	VIN4B	I	Video in
171	C10	VREFB	P	Video reference voltage
172	D9	VRP	P	Video reference voltage
173	C9	VRM	P	Video reference voltage
174	A7	VIN1C	I	Video in
175	B7	VIN2C	I	Video in
176	A6	VIN3C	I	Video in
177	B8	VREFC	P	Video reference voltage
178	B17	HSIN	I	H sync in
179	B16	VSIN	I	V sync in
180	D5	SIFIN	I	SIF input
181	A4	VSBINP	I	Digital IF in +
182	B4	VSBINM	I	Digital IF in -
183	C6	VRPVSA	P	Reference voltage
184	B5	VRMVSA	P	Reference voltage
185	F20	RXC0M	I	HDMI clock in - ch#0

No.	Ball NO.	PIN NAME	I/O	DESCRIPTION
186	F19	RXC0P	I	HDMI clock in + ch#0
187	E21	RX00M	I	HDMI data 0 - ch#0
188	E20	RX00P	I	HDMI data 0 + ch#0
189	D22	RX10M	I	HDMI data 1 - ch#0
190	D21	RX10P	I	HDMI data 1 + ch#0
191	C22	RX20M	I	HDMI data 2 - ch#0
192	C21	RX20P	I	HDMI data 2 + ch#0
193	H21	RXC1M	I	HDMI clock in - ch#1
194	H20	RXC1P	I	HDMI clock in + ch#1
195	G21	RX01M	I	HDMI data 0 - ch#1
196	G22	RX01P	I	HDMI data 0 + ch#1
197	F21	RX11M	I	HDMI data 1 - ch#1
198	F22	RX11P	I	HDMI data 1 + ch#1
199	G20	RX21M	I	HDMI data 2 - ch#1
200	G19	RX21P	I	HDMI data 2 + ch#1
201	D20	RXC2M	I	HDMI clock in - ch#2
202	D19	RXC2P	I	HDMI clock in + ch#2
203	B22	RX02M	I	HDMI data 0 - ch#2
204	B21	RX02P	I	HDMI data 0 + ch#2
205	B22	RX12M	I	HDMI data 1 - ch#2
206	B21	RX12P	I	HDMI data 1 + ch#2
207	A22	RX22M	I	HDMI data 2 - ch#2
208	A21	RX22P	I	HDMI data 2 + ch#2
209	E18	EXT_RES	I	External resistance
210	A17	PWR0	I	HDMI PWR in ch#0
211	B18	PWR1	I	HDMI PWR in ch#1
212	C17	PWR2	I	HDMI PWR in ch#2
213	D16	DDC0_SCL	I	HDMI DDC SCL ch#0
214	D17	DDC0_SDA	I/O	HDMI DDC SDA ch#0
215	A18	DDC1_SCL	I	HDMI DDC SCL ch#1
216	A19	DDC1_SDA	I/O	HDMI DDC SDA ch#1
217	C18	DDC2_SCL	I	HDMI DDC SCL ch#2
218	B19	DDC2_SDA	I/O	HDMI DDC SDA ch#2
219	H19	PLL_XFC_A	P	HDMI PLL filter
220	J18	PLL_XFC_X	P	HDMI PLL filter
221	H18	PLL_XFC_P	P	HDMI PLL filter
222	B2	AINL	I	Audio A/D converter in L
223	C3	VCOM	P	Audio reference voltage
224	A1	AINR	I	Audio A/D converter in R
225	C4	DA_LOUT	O	Audio D/A converter out L
226	A3	DA_ROUT	O	Audio D/A converter out R
227	D4	DA_VCOM	P	Audio reference voltage
228	E11	AVDD18	P	Video ADC power
229	E13	AVDD18	P	Video ADC power
230	E9	AVDD18	P	Video ADC power
231	A16	AVDD33	P	Video ADC power
232	C8	AVDD33	P	Video ADC power
233	D11	AVDD33	P	Video ADC power
234	B3	AVDD33AUA	P	Audio ADC power
235	E3	AVDD33AUA	P	Audio ADC power
236	E5	AVDD33AUD	P	Audio DAC power
237	D7	AVDD33VSA	P	ADC power
238	E7	AVDD33VSA	P	ADC power
239	A14	AVSS	G	Video ADC ground
240	A8	AVSS	G	Video ADC ground
241	D12	AVSS	G	Video ADC ground
242	D8	AVSS	G	Video ADC ground
243	E10	AVSS	G	Video ADC ground
244	E12	AVSS	G	Video ADC ground
245	E8	AVSS	G	Video ADC ground
246	A2	AVSSAUA	G	Audio ADC ground
247	B1	AVSSAUA	G	Audio ADC ground
248	D3	AVSSAUA	G	Audio ADC ground
249	C5	AVSSAUD	G	Audio DAC ground

No.	Ball NO.	PIN NAME	I/O	DESCRIPTION
250	E4	AVSSAUD	G	Audio DAC ground
251	A5	AVSSVSA	G	ADC ground
252	D6	AVSSVSA	G	ADC ground
253	C14	DLLVDD	P	DLL power
254	D13	DLLVSS	G	DLL ground
255	Y11	PLL1AVCC	P	PLL power
256	W11	PLL1DVDD	P	PLL power
257	V11	PLL2AVCC	P	PLL power
258	V12	PLL2DVDD	P	PLL power
259	W10	PLL3AVCC	P	PLL power
260	V10	PLL3DVDD	P	PLL power
261	N18	PLL4AVCC	P	PLL power
262	R18	PLL4DVDD	P	PLL power
263	C13	PLLVDD	P	PLL power
264	B14	PLLVSS	G	PLL ground
265	L18	VCC33BIAS	P	LVDS BIAS power
266	J20	VCC33LVDS	P	LVDS power
267	T18	VCC33LVDS	P	LVDS power
268	N1	VCCQ18	P	DDR2 power
269	N5	VCCQ18	P	DDR2 power
270	T1	VCCQ18	P	DDR2 power
271	T5	VCCQ18	P	DDR2 power
272	V3	VCCQ18	P	DDR2 power
273	Y1	VCCQ18	P	DDR2 power
274	Y5	VCCQ18	P	DDR2 power
275	Y9	VCCQ18	P	DDR2 power
276	H5	VCCQ33	P	Digital IO power
277	K5	VCCQ33	P	Digital IO power
278	V14	VCCQ33	P	Digital IO power
279	V18	VCCQ33	P	Digital IO power
280	K10	VDD	P	Digital core power
281	K12	VDD	P	Digital core power
282	K9	VDD	P	Digital core power
283	L10	VDD	P	Digital core power
284	L13	VDD	P	Digital core power
285	L14	VDD	P	Digital core power
286	L3	VDD	P	Digital core power
287	L4	VDD	P	Digital core power
288	L5	VDD	P	Digital core power
289	L9	VDD	P	Digital core power
290	M14	VDD	P	Digital core power
291	M3	VDD	P	Digital core power
292	M4	VDD	P	Digital core power
293	M5	VDD	P	Digital core power
294	M9	VDD	P	Digital core power
295	N14	VDD	P	Digital core power
296	N9	VDD	P	Digital core power
297	P12	VDD	P	Digital core power
298	P14	VDD	P	Digital core power
299	P9	VDD	P	Digital core power
300	V15	VDD	P	Digital core power
301	V17	VDD	P	Digital core power
302	V6	VDD	P	Digital core power
303	V8	VDD	P	Digital core power
304	E14	Reserved	-	Do not connect any signals.
305	J10	VDD18	P	1.8V power
306	J11	VDD18	P	1.8V power
307	J12	VDD18	P	1.8V power
308	J9	VDD18	P	1.8V power
309	K11	VDD18	P	1.8V power
310	E15	VDD18HDMI	P	HDMI power
311	J13	VDD18HDMI	P	HDMI power
312	K14	VDD18HDMI	P	HDMI power
313	F18	VDD33_PLL	P	HDMI power

No.	Ball NO.	PIN NAME	I/O	DESCRIPTION
314	K18	VDD33_PLL	P	HDMI power
315	B20	VDD33HDMI	P	HDMI power
316	E16	VDD33HDMI	P	HDMI power
317	E22	VDD33HDMI	P	HDMI power
318	D15	VDD33IO	P	HDMI power
319	C16	VPPOTP	P	HDMI power
320	AB1	VSS	G	Digital ground
321	AB22	VSS	G	Digital ground
322	AB9	VSS	G	Digital ground
323	D1	VSS	G	Digital ground
324	J5	VSS	G	Digital ground
325	L11	VSS	G	Digital ground
326	L12	VSS	G	Digital ground
327	M10	VSS	G	Digital ground
328	M11	VSS	G	Digital ground
329	M12	VSS	G	Digital ground
330	M13	VSS	G	Digital ground
331	N10	VSS	G	Digital ground
332	N11	VSS	G	Digital ground
333	N12	VSS	G	Digital ground
334	N13	VSS	G	Digital ground
335	P10	VSS	G	Digital ground
336	P11	VSS	G	Digital ground
337	P13	VSS	G	Digital ground
338	P18	VSS	G	Digital ground
339	P3	VSS	G	Digital ground
340	P5	VSS	G	Digital ground
341	T3	VSS	G	Digital ground
342	U18	VSS	G	Digital ground
343	U5	VSS	G	Digital ground
344	V13	VSS	G	Digital ground
345	V16	VSS	G	Digital ground
346	V5	VSS	G	Digital ground
347	V9	VSS	G	Digital ground
348	W4	VSS	G	Digital ground
349	Y3	VSS	G	Digital ground
350	Y7	VSS	G	Digital ground
351	M18	VSS33BIAS	G	LVDS BIAS ground
352	M20	VSS33LVDS	G	LVDS ground
353	T22	VSS33LVDS	G	LVDS ground
354	A20	VSSHDMI	G	HDMI ground
355	E17	VSSHDMI	G	HDMI ground
356	G18	VSSHDMI	G	HDMI ground
357	H22	VSSHDMI	G	HDMI ground
358	J14	VSSHDMI	G	HDMI ground
359	K13	VSSHDMI	G	HDMI ground
360	J19	VSSHDMI	G	HDMI ground
361	C15	VSSIO	G	HDMI ground
362	D14	VSSIO	G	HDMI ground
363	C7	Reserved	G	Do not connect any signals.
364	E19	Reserved	G	Do not connect any signals.
365	E6	Reserved	G	Do not connect any signals.
366	B6	NC	-	Not connected.
367	C1	NC	-	Not connected.
368	C2	NC	-	Not connected.
369	D18	NC	-	Not connected.
370	D2	NC	-	Not connected.
371	E2	NC	-	Not connected.
372	F3	NC	-	Not connected.
373	F4	NC	-	Not connected.
374	F5	NC	-	Not connected.
375	G4	NC	-	Not connected.
376	G5	NC	-	Not connected.

SEMICONDUCTOR BASE CONNECTIONS

DIODE

1H3-A2
1H6-A2
1SS133T-77
MTZJ12B T-77
MTZJ33B T-77
SARS01-V1

31DQ10-FC
ZRM11C

1N4005-EIC
RU2AM-EIC

EC11FS2-TE12L
SMAB34

LTL-1CHEE-002A

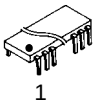
S10K150E2S5M4

BAT54WS
UDZSNP22B TE-17
UDZSNP33B TE-17
UDZSNP9.1B TE-17

MBRF1045CT

MA111-(TX)

IC



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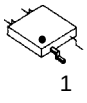

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TC74LVX4052FT

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LA5797M-TE-L-E
UP7704U8

R3111N291C-TR-F
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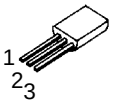

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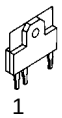

LA42052-E

TRANSISTOR

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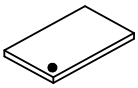

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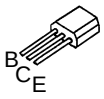

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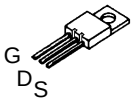
KRA103SRTK
KRC102SRTK
KTC3198-AT(Y,GR)

KRC103SRTK
KTA1504S_Y_RTK
KTC3875S_Y_RTK



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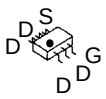


SI3443BDV-T1-E3

FW256-TL-E

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	7A701B329A	FRONT CABI ASS'Y		
101A	701WPJD847	CABINET FRONT		
101B	713WPA0434	GLASS LED		or
	713WPAA291	GLASS LED		
101C	800WQ00181	FELT SHEET		
102	7A702A969A	BACK CABI ASS'Y		or
	7A702A954A	BACK CABI ASS'Y		or
	7A702A970A	BACK CABI ASS'Y		or
	7A702B002A	BACK CABI ASS'Y		
102A	702WPAB537	CABINET BACK		
102B	761WSA0709	ANGLE BACK		
103	7A7040108A	STAND ASS'Y		
103A	704WPBA110	STAND		or
	704WPBA111	STAND		or
	704WPBA124	STAND		
103B	800WRA0009	CUSHION LEG		
104	7A711A179A	PANEL SIDE ASS'Y		
104A	711WPDA913	PANEL SIDE		
104B	735WPAB189	BUTTON FRAME		
105	752WSA0737	SHIELD DIGITAL		
106	704WPA0123	STAND FRAME		
107	706WPA0031	COVER CONNECTOR		
108	722465A542	SHEET RATING		
109	7230007075	SHEET INFORMATION		
110	744WUA0038	SPRING EARTH-3		or
	744WUAA005	SPRING EARTH-3		
111	761WPAA235	HOLDER LCD		
112	761WPA0554	HOLDER LVDS-3		
113	702WPA1438	COVER INVERTER		or
	702WPAB497	COVER INVERTER		
114	800WQ0A060	FELT SHEET		
201	8109I30A0U	SCREW TAP TITE(B) WH7	3x10	
202	8109D30A0U	SCREW TAP TITE(B) WH8	3x10	
203	8109230A0U	SCREW TAP TITE(B) BIND	3x10	
204	8109230A4U	SCREW TAP TITE(B) BIND	3x14	
205	8110K3080U	SCREW TAP TITE(P) LAMI	HEAD 3x8	
206	8117140B5U	SCREW TAPPING(B0) PAN	4x25	
---	791WHA0189	FILM BAG		or
	791WHA0192	FILM BAG		
---	792WHA0782	PACKAGE TOP		or
	792WHAA320	PACKAGE TOP		or
	792WHAA342	PACKAGE TOP		or
	792WHAA346	PACKAGE TOP		
---	792WHA0783	PACKAGE BOTTOM		or
	792WHAA321	PACKAGE BOTTOM		or
	792WHAA343	PACKAGE BOTTOM		or
	792WHAA347	PACKAGE BOTTOM		
---	793WCDE207	GIFT BOX		
---	795WCAA943	PAD		or
	795WCA0733	PAD		
---	8905000001	SCREW		

ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
TM101	076E0RC011	TRANSMITTER	CR48D00
⚠ CD501	120Q119905	CORD SET AC	P201-2476-2
---	J34C1129A	INFORMATION SHEET(RETURN)	
---	J39A0501A	INSTRUCTION BOOK(EN)	
---	JA5K0000	POLYBAG,INSTRUCTION	

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS				**RESISTORS**	
R302	R803R9102J	RC	1K OHM 1/16W	R2846	R808R9102F	RC	1K OHM 1/16W
R304	R803R9222J	RC	2.2K OHM 1/16W	R2847	R808R9562F	RC	5.6K OHM 1/16W
R305	R803R9222J	RC	2.2K OHM 1/16W	R2848	R808R9220J	RC	22 OHM 1/16W
R306	R803R9222J	RC	2.2K OHM 1/16W	R2849	R808R9103J	RC	10K OHM 1/16W
R307	R803R9222J	RC	2.2K OHM 1/16W	R2850	R808R9220J	RC	22 OHM 1/16W
R313	R002T4101J	RC	100 OHM 1/4W	R2851	R808R9103J	RC	10K OHM 1/16W
R501	R002T2223J	RC	22K OHM 1/2W	R2852	R808R9102F	RC	1K OHM 1/16W
R502	R002T4103J	RC	10K OHM 1/4W	R2853	R808R9102F	RC	1K OHM 1/16W
⚠R503	RC31X1126J	RC	12M OHM 1W	R2854	R808R9102F	RC	1K OHM 1/16W
R504	R002T2223J	RC	22K OHM 1/2W	R2856	R808R9682F	RC	6.8K OHM 1/16W
⚠R505	R63884330J	R,FUSE	33 OHM 1/4W	R2857	R808R9272J	RC	2.7K OHM 1/16W
R506	R803R9333J	RC	33K OHM 1/16W	R2858	R808R9272J	RC	2.7K OHM 1/16W
R507	R803R9101J	RC	100 OHM 1/16W	R2859	R808R9332J	RC	3.3K OHM 1/16W
R508	R002T4101J	RC	100 OHM 1/4W	R2860	R808R9332J	RC	3.3K OHM 1/16W
⚠R509	RC31X1125J	RC	1.2M OHM 1W	R2861	R808R9102J	RC	1K OHM 1/16W
⚠R510	R3K781010J	R,METAL OXIDE	1 OHM 1W	R2862	R808R9153J	RC	15K OHM 1/16W
R511	R002T4150J	RC	15 OHM 1/4W	R2863	R808R9472J	RC	4.7K OHM 1/16W
⚠R512	R3K781563J	R,METAL OXIDE	56K OHM 1W	R2866	R808R9472J	RC	4.7K OHM 1/16W
R513	R002T4823J	RC	82K OHM 1/4W	R2867	R808R9472J	RC	4.7K OHM 1/16W
R515	R803R9102J	RC	1K OHM 1/16W	R2868	R808R9103J	RC	10K OHM 1/16W
R517	R002T4222J	RC	2.2K OHM 1/4W	R2873	R808R9472J	RC	4.7K OHM 1/16W
R518	R002T4101J	RC	100 OHM 1/4W	R2874	R808R9472J	RC	4.7K OHM 1/16W
R519	R803R9103J	RC	10K OHM 1/16W	R2876	R808R9472J	RC	4.7K OHM 1/16W
R523	R803R9222F	RC	2.2K OHM 1/16W	R2879	R808R9472J	RC	4.7K OHM 1/16W
R524	R803R9911F	RC	910 OHM 1/16W	R2882	R808R9472J	RC	4.7K OHM 1/16W
R525	R803R9222F	RC	2.2K OHM 1/16W	R2883	R808R9472J	RC	4.7K OHM 1/16W
R529	R002T4222J	RC	2.2K OHM 1/4W	R2894	R808R9220J	RC	22 OHM 1/16W
R531	R803R9103J	RC	10K OHM 1/16W	R2896	R808R9220J	RC	22 OHM 1/16W
R533	R803R9103F	RC	10K OHM 1/16W	R2901	R808R9103J	RC	10K OHM 1/16W
R535	R002T4822J	RC	8.2K OHM 1/4W	R2906	R808R9103J	RC	10K OHM 1/16W
R536	R803R9224F	RC	220K OHM 1/16W	R2915	R808R9472J	RC	4.7K OHM 1/16W
R538	R803R9103J	RC	10K OHM 1/16W	R2916	R808R9472J	RC	4.7K OHM 1/16W
R543	R803R9223J	RC	22K OHM 1/16W	R2917	R808R9332J	RC	3.3K OHM 1/16W
⚠R544	R861R41R2F	RC	1.2 OHM 1/4W	R2918	R808R9103J	RC	10K OHM 1/16W
⚠R545	R861R41R2F	RC	1.2 OHM 1/4W	R2919	R808R9103J	RC	10K OHM 1/16W
⚠R546	R861R41R2F	RC	1.2 OHM 1/4W	R2920	R808R9103J	RC	10K OHM 1/16W
⚠R547	R861R41R2F	RC	1.2 OHM 1/4W	R2927	R808R9153J	RC	15K OHM 1/16W
R549	R803R7102J	RC	1K OHM 1/10W	R3004	R808R9102J	RC	1K OHM 1/16W
R2202	R803R9821J	RC	820 OHM 1/16W	R3012	R808R9682J	RC	6.8K OHM 1/16W
R2203	R803R9153J	RC	15K OHM 1/16W	R3017	R808R9822J	RC	8.2K OHM 1/16W
R2204	R803R9562J	RC	5.6K OHM 1/16W	R3021	R808R9470J	RC	47 OHM 1/16W
R2205	R803R9562J	RC	5.6K OHM 1/16W	R3023	R808R9103J	RC	10K OHM 1/16W
R2206	R803R9821J	RC	820 OHM 1/16W	R3024	R808R9332J	RC	3.3K OHM 1/16W
R2802	R808R9103J	RC	10K OHM 1/16W	R3027	R808R9102J	RC	1K OHM 1/16W
R2803	R808R9103J	RC	10K OHM 1/16W	R3029	R808R9393J	RC	39K OHM 1/16W
R2804	R808R9103J	RC	10K OHM 1/16W	R3030	R808R9103F	RC	10K OHM 1/16W
R2805	R808R9103J	RC	10K OHM 1/16W	R3034	R808R9103F	RC	10K OHM 1/16W
R2807	R808R9472J	RC	4.7K OHM 1/16W	R3037	R808R9332F	RC	3.3K OHM 1/16W
R2808	R808R9182J	RC	1.8K OHM 1/16W	R3038	R808R9392F	RC	3.9K OHM 1/16W
R2809	R808R9181F	RC	180 OHM 1/16W	R3039	R808R9101F	RC	100 OHM 1/16W
R2812	R808R9472J	RC	4.7K OHM 1/16W	R3040	R808R9562F	RC	5.6K OHM 1/16W
R2813	R808R9472J	RC	4.7K OHM 1/16W	R3057	R808R9433J	RC	43K OHM 1/16W
R2815	R808R9220J	RC	22 OHM 1/16W	R3058	R808R9102F	RC	1K OHM 1/16W
R2816	R808R9220J	RC	22 OHM 1/16W	R3059	R808R9273F	RC	27K OHM 1/16W
R2817	R808R9220J	RC	22 OHM 1/16W	R3060	R808R9681F	RC	680 OHM 1/16W
R2818	R808R9220J	RC	22 OHM 1/16W	R3431	R808R9471J	RC	470 OHM 1/16W
R2819	R808R9220J	RC	22 OHM 1/16W	R3600	R808R9103J	RC	10K OHM 1/16W
R2820	R808R9105J	RC	1M OHM 1/16W	R3602	R808R9103J	RC	10K OHM 1/16W
R2822	R808R9104J	RC	100K OHM 1/16W	R3603	R808R9103J	RC	10K OHM 1/16W
R2823	R808R9222J	RC	2.2K OHM 1/16W	R3605	R808R9103J	RC	10K OHM 1/16W
R2824	R808R9103J	RC	10K OHM 1/16W	R3606	R808R9103J	RC	10K OHM 1/16W
R2825	R808R9103J	RC	10K OHM 1/16W	R3609	R808R9103J	RC	10K OHM 1/16W
R2828	R808R9472J	RC	4.7K OHM 1/16W	R3610	R808R9103J	RC	10K OHM 1/16W
R2829	R808R9102F	RC	1K OHM 1/16W	R3613	R808R9103J	RC	10K OHM 1/16W
R2830	R808R9102F	RC	1K OHM 1/16W	R3616	R808R9103J	RC	10K OHM 1/16W
R2831	R808R9121J	RC	120 OHM 1/16W	R3618	R808R9103J	RC	10K OHM 1/16W
R2832	R808R9330J	RC	33 OHM 1/16W	R3619	R808R9103J	RC	10K OHM 1/16W
R2835	R808R9472J	RC	4.7K OHM 1/16W	R3621	R808R9103J	RC	10K OHM 1/16W
R2836	R808R9243J	RC	24K OHM 1/16W	R3623	R808R9473J	RC	47K OHM 1/16W
R2837	R808R9243J	RC	24K OHM 1/16W	R3624	R808R9473J	RC	47K OHM 1/16W
R2838	R808R9472J	RC	4.7K OHM 1/16W	R3626	R808R9473J	RC	47K OHM 1/16W
R2839	R808R9472J	RC	4.7K OHM 1/16W	R3627	R808R9473J	RC	47K OHM 1/16W
R2841	R808R9330J	RC	33 OHM 1/16W	R3628	R808R9473J	RC	47K OHM 1/16W
R2842	R808R94R7J	RC	4.7 OHM 1/16W	R3629	R808R9473J	RC	47K OHM 1/16W
R2843	R808R94R7J	RC	4.7 OHM 1/16W	R3630	R808R9473J	RC	47K OHM 1/16W
R2844	R808R9820F	RC	82 OHM 1/16W	R3631	R808R9473J	RC	47K OHM 1/16W
R2845	R808R9102F	RC	1K OHM 1/16W	R3654	R808R9561J	RC	560 OHM 1/16W

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS				**RESISTORS**	
R3657	R808R9103J	RC	10K OHM 1/16W	R8105	R803R9750J	RC	75 OHM 1/16W
R4235	R808R9222J	RC	2.2K OHM 1/16W	R8106	R803R9750J	RC	75 OHM 1/16W
R4238	R808R9101J	RC	100 OHM 1/16W	R8107	R803R9750J	RC	75 OHM 1/16W
R4245	R808R9152J	RC	1.5K OHM 1/16W	R8108	R803R9750J	RC	75 OHM 1/16W
R4246	R808R9332J	RC	3.3K OHM 1/16W	R8110	R803R9102J	RC	1K OHM 1/16W
R4247	R808R9101J	RC	100 OHM 1/16W	R8111	R803R9101J	RC	100 OHM 1/16W
R4249	R808R9221J	RC	220 OHM 1/16W	R8112	R803R9101J	RC	100 OHM 1/16W
R4250	R808R9101J	RC	100 OHM 1/16W	R8113	R803R9102J	RC	1K OHM 1/16W
R4251	R808R9680J	RC	68 OHM 1/16W	R8114	R803R9102J	RC	1K OHM 1/16W
R4252	R808R9332J	RC	3.3K OHM 1/16W	R8115	R803R9101J	RC	100 OHM 1/16W
R4254	R808R9332J	RC	3.3K OHM 1/16W	R8116	R803R9102J	RC	1K OHM 1/16W
R4257	R808R9104J	RC	100K OHM 1/16W	R8117	R803R9102J	RC	1K OHM 1/16W
R4258	R808R9222J	RC	2.2K OHM 1/16W	R8118	R803R9101J	RC	100 OHM 1/16W
R4261	R808R9750J	RC	75 OHM 1/16W	R8119	R803R9101J	RC	100 OHM 1/16W
R4262	R808R9222J	RC	2.2K OHM 1/16W	R8120	R803R9101J	RC	100 OHM 1/16W
R4263	R808R9750J	RC	75 OHM 1/16W			**CAPACITORS**	
R4265	R808R9750J	RC	75 OHM 1/16W	C301	CS0PB0N16K	CC	1 UF 10V B
R4316	R808R9102J	RC	1K OHM 1/16W	C302	CS0PB0415K	CC	0.1 UF 50V B
R4317	R808R9102J	RC	1K OHM 1/16W	C303	CS0PB0N16K	CC	1 UF 10V B
R4318	R808R9563J	RC	56K OHM 1/16W	C304	E7ESU2101M	CE	100 UF 16V
R4319	R808R9563J	RC	56K OHM 1/16W	C305	CS0PCH4Q2J	CC	470 PF 50V CH
R5803	R808R9154J	RC	150K OHM 1/16W	C306	CS0PCH4Q2J	CC	470 PF 50V CH
R5804	R808R9473J	RC	47K OHM 1/16W	C307	E7ESU5100M	CE	10 UF 50V
R5805	R808R9104J	RC	100K OHM 1/16W	C309	E7EST2471M	CE	470 UF 16V
R5806	R808R9101J	RC	100 OHM 1/16W	C310	E7EST2471M	CE	470 UF 16V
R5807	R808R9101J	RC	100 OHM 1/16W	C311	E7EST2471M	CE	470 UF 16V
R5808	R808R9101J	RC	100 OHM 1/16W	C323	E7ESU54R7M	CE	4.7 UF 50V
R5809	R808R9101J	RC	100 OHM 1/16W	C501	CS0PB04E4K	CC	0.015 UF 50V B
R5814	R808R9332J	RC	3.3K OHM 1/16W	⚠C502	E82DFC151M	CE	150 UF 200V
R5815	R808R9332J	RC	3.3K OHM 1/16W	C503	CS0PCH4Q1J	CC	47 PF 50V CH
R5816	R808R9102J	RC	1K OHM 1/16W	⚠C504	E8E1F1222D	CE	2200 UF 10V
R5817	R808R9101J	RC	100 OHM 1/16W	C505	CS0PCH4W1J	CC	82 PF 50V CH
R5824	R808R9102J	RC	1K OHM 1/16W	⚠C506	P4K12D224K	CMPP	0.22 UF 310V
R6207	R808R9103J	RC	10K OHM 1/16W	⚠C507	CE39E0M13M	CC	0.001 UF 250V E
R6208	R808R9472J	RC	4.7K OHM 1/16W	⚠C508	P4K12D104K	CMPP	0.1 UF 310V
R6503	R808R9153J	RC	15K OHM 1/16W	C509	CS0PB0415K	CC	0.1 UF 50V B
R6504	R808R9153J	RC	15K OHM 1/16W	C510	CRGTB0415K	CC	0.1 UF 50V B
R6506	R808R9153J	RC	15K OHM 1/16W	⚠C511	E7ESU2221M	CE	220 UF 16V
R6507	R808R9103J	RC	10K OHM 1/16W	⚠C513	C0PLRR713K	CC	0.001 UF 2KV R
R6508	R808R9103J	RC	10K OHM 1/16W	⚠C514	CE39E0MQ2K	CC	470 PF 250V E
R6509	R808R9153J	RC	15K OHM 1/16W	C516	E7ESU5470M	CE	47 UF 50V
R6510	R808R9153J	RC	15K OHM 1/16W	C518	P332E4223J	CPP	0.022 UF 400V
R6511	R808R9153J	RC	15K OHM 1/16W	C519	C03L0R7H2K	CC	220 PF 2KV R
R7001	R803R9272J	RC	2.7K OHM 1/16W	⚠C520	E8E2U54R7D	CE	4.7 UF 50V
R7002	R803R9223J	RC	22K OHM 1/16W	C521	P232W0184J	CMPL	0.18 UF 50V MMTS
R7003	R803R9472J	RC	4.7K OHM 1/16W	⚠C522	E8E1T2471M	CE	470 UF 16V
R7004	R803R9102J	RC	1K OHM 1/16W	C523	P1S3T0472J	CP	0.0047UF 50V
R7005	R803R9101J	RC	100 OHM 1/16W	⚠C525	E8E1F3102M	CE	1000 UF 25V
R7010	R803R9393F	RC	39K OHM 1/16W	C526	CS0PB0413K	CC	0.001 UF 50V B
R7011	R002T4104J	RC	100K OHM 1/4W	C531	CS0PB0316K	CC	1 UF 25V B
R7012	R002T4471J	RC	470 OHM 1/4W	⚠C534	CE39E0M13M	CC	0.001 UF 250V E
R7013	R803R9683J	RC	68K OHM 1/16W	C538	CS0PB03E5K	CC	0.15 UF 25V B
R7014	R002T4153J	RC	15K OHM 1/4W	C539	CS0PB03E5K	CC	0.15 UF 25V B
R7015	R803R9223J	RC	22K OHM 1/16W	C543	E7ESU5100M	CE	10 UF 50V
R7016	R803R9223J	RC	22K OHM 1/16W	C545	CS0PB02E5K	CC	0.15 UF 16V B
R7017	R803R9223F	RC	22K OHM 1/16W	C546	CS0PB02E5K	CC	0.15 UF 16V B
R7018	R803R9122J	RC	1.2K OHM 1/16W	C2801	CS0UB0N15K	CC	0.1 UF 10V B
R7019	R002T4471J	RC	470 OHM 1/4W	C2805	CS0UB0214K	CC	0.01 UF 16V B
R7021	R803R9274J	RC	270K OHM 1/16W	C2807	CS0UCH4H1J	CC	22 PF 50V CH
R7022	R002T4332J	RC	3.3K OHM 1/4W	C2808	CS0UCH4H1J	CC	22 PF 50V CH
R7023	R002T4220J	RC	22 OHM 1/4W	C2809	CS0UB0N15K	CC	0.1 UF 10V B
R7024	R002T4220J	RC	22 OHM 1/4W	C2810	CS0UB0N15K	CC	0.1 UF 10V B
R7025	R803R9393F	RC	39K OHM 1/16W	C2811	CS0RB0N17K	CC	10 UF 10V B
R7026	R803R9822F	RC	8.2K OHM 1/16W	C2812	CS0UB0N15K	CC	0.1 UF 10V B
R7027	R803R9153J	RC	15K OHM 1/16W	C2813	CS0UB0N15K	CC	0.1 UF 10V B
R7028	R803R9104F	RC	100K OHM 1/16W	C2814	CS0UB0N15K	CC	0.1 UF 10V B
R7030	R803R9153F	RC	15K OHM 1/16W	C2815	CS0UB0N15K	CC	0.1 UF 10V B
R7031	R803R9272F	RC	2.7K OHM 1/16W	C2816	CS0UB0N15K	CC	0.1 UF 10V B
R7032	R803R9333J	RC	33K OHM 1/16W	C2817	CS0UB0N15K	CC	0.1 UF 10V B
R7038	R002T4330J	RC	33 OHM 1/4W	C2818	CS0UB0N15K	CC	0.1 UF 10V B
R7039	R002T4330J	RC	33 OHM 1/4W	C2819	CS0UB0N15K	CC	0.1 UF 10V B
R7047	R803R9103J	RC	10K OHM 1/16W	C2820	CS0UB0N15K	CC	0.1 UF 10V B
R7602	R803R9470J	RC	47 OHM 1/16W	C2821	CS0UB0N15K	CC	0.1 UF 10V B
R7604	R803R9391J	RC	390 OHM 1/16W	C2822	CS0UB0N15K	CC	0.1 UF 10V B
R7605	R803R9101J	RC	100 OHM 1/16W	C2823	CS0UB0N15K	CC	0.1 UF 10V B
R8103	R803R9750J	RC	75 OHM 1/16W	C2824	CS0UB0N15K	CC	0.1 UF 10V B
R8104	R803R9750J	RC	75 OHM 1/16W	C2825	CS0UB0N15K	CC	0.1 UF 10V B

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
		CAPACITORS			CAPACITORS
C2826	CS0UB0N15K	CC 0.1 UF 10V B	C2926	CS0RB0N17K	CC 10 UF 10V B
C2827	CS0UB0N15K	CC 0.1 UF 10V B	C2927	CS0RB0N17K	CC 10 UF 10V B
C2828	CS0UB0N15K	CC 0.1 UF 10V B	C2928	CS0RB0N17K	CC 10 UF 10V B
C2829	CS0UB0N15K	CC 0.1 UF 10V B	C2929	CS0RB0N17K	CC 10 UF 10V B
C2830	CS0UB0N15K	CC 0.1 UF 10V B	C2930	E61UMQ331D	CE 330 UF 4V
C2831	CS0UB0N15K	CC 0.1 UF 10V B	C2932	CS0UB0N15K	CC 0.1 UF 10V B
C2832	CS0UB0N15K	CC 0.1 UF 10V B	C2933	CS0UB0N15K	CC 0.1 UF 10V B
C2833	CS0UB0N15K	CC 0.1 UF 10V B	C2934	CS0UB0N15K	CC 0.1 UF 10V B
C2834	CS0UB0N15K	CC 0.1 UF 10V B	C2936	CS0UB0N15K	CC 0.1 UF 10V B
C2835	CS0UB0N15K	CC 0.1 UF 10V B	C2937	CS0UB0N15K	CC 0.1 UF 10V B
C2836	CS0UB0N15K	CC 0.1 UF 10V B	C2938	CS0UB0N15K	CC 0.1 UF 10V B
C2837	CS0UB0N15K	CC 0.1 UF 10V B	C2939	CS0UB0N15K	CC 0.1 UF 10V B
C2838	CS0UB0N15K	CC 0.1 UF 10V B	C2940	CS0UB0N15K	CC 0.1 UF 10V B
C2839	CS0UB0N15K	CC 0.1 UF 10V B	C2943	CS0UB0N15K	CC 0.1 UF 10V B
C2840	CS0UB0N15K	CC 0.1 UF 10V B	C2944	CS0UB0N15K	CC 0.1 UF 10V B
C2841	E66UM0331D	CE 330 UF 6.3V	C2945	CS0UB0N15K	CC 0.1 UF 10V B
C2842	E66UM1220D	CE 22 UF 10V	C2946	CS0PB0N16K	CC 1 UF 10V B
C2843	CS0RB0N17K	CC 10 UF 10V B	C2948	CS0PB0N16K	CC 1 UF 10V B
C2844	CS0UB0N15K	CC 0.1 UF 10V B	C2950	CS0UB0N15K	CC 0.1 UF 10V B
C2845	CS0UB0N15K	CC 0.1 UF 10V B	C2951	CS0RB0N17K	CC 10 UF 10V B
C2846	CS0UB0N15K	CC 0.1 UF 10V B	C2952	CS0UB0N15K	CC 0.1 UF 10V B
C2848	CS0UB0N15K	CC 0.1 UF 10V B	C2953	CS0UB0N15K	CC 0.1 UF 10V B
C2851	E66UM0331D	CE 330 UF 6.3V	C2954	CS0UB0N15K	CC 0.1 UF 10V B
C2854	CS0UB0N15K	CC 0.1 UF 10V B	C2955	CS0UB0N15K	CC 0.1 UF 10V B
C2855	E61UMQ331D	CE 330 UF 4V	C2956	CS0UB0N15K	CC 0.1 UF 10V B
C2856	CS0RB0N17K	CC 10 UF 10V B	C2957	CS0UB0N15K	CC 0.1 UF 10V B
C2857	CS0UB0N15K	CC 0.1 UF 10V B	C2958	CS0UB0N15K	CC 0.1 UF 10V B
C2858	CS0UB0N15K	CC 0.1 UF 10V B	C2959	E66UM1220D	CE 22 UF 10V
C2859	CS0UB0N15K	CC 0.1 UF 10V B	C2960	CS0UB0N15K	CC 0.1 UF 10V B
C2860	CS0RB0N17K	CC 10 UF 10V B	C2961	CS0UB0413K	CC 0.001 UF 50V B
C2861	CS0RB0N17K	CC 10 UF 10V B	C2962	CS0UB0413K	CC 0.001 UF 50V B
C2862	CS0RB0N17K	CC 10 UF 10V B	C2963	CS0UB0N15K	CC 0.1 UF 10V B
C2863	CS0RB0N17K	CC 10 UF 10V B	C2976	CS0UB0N15K	CC 0.1 UF 10V B
C2864	CS0UB0N15K	CC 0.1 UF 10V B	C2985	CS0RB0216K	CC 1 UF 16V B
C2865	CS0UB0N15K	CC 0.1 UF 10V B	C2986	E61UMQ331D	CE 330 UF 4V
C2866	CS0UB0N15K	CC 0.1 UF 10V B	C3004	CS0UB0413K	CC 0.001 UF 50V B
C2867	CS0UB0N15K	CC 0.1 UF 10V B	C3012	CS0UB0413K	CC 0.001 UF 50V B
C2868	CS0UB0N15K	CC 0.1 UF 10V B	C3015	CS0RB0N17K	CC 10 UF 10V B
C2869	CS0UB0N15K	CC 0.1 UF 10V B	C3017	CS0UB0413K	CC 0.001 UF 50V B
C2870	CS0UB0N15K	CC 0.1 UF 10V B	C3018	CS0RB0N17K	CC 10 UF 10V B
C2871	CS0UB0N15K	CC 0.1 UF 10V B	C3019	CS0RB0N17K	CC 10 UF 10V B
C2872	CS0UB0N15K	CC 0.1 UF 10V B	C3021	CS0RB0N17K	CC 10 UF 10V B
C2873	CS0UB0N15K	CC 0.1 UF 10V B	C3023	CS0UB0NH5K	CC 0.22 UF 10V B
C2874	CS0UB0N15K	CC 0.1 UF 10V B	C3024	CS0RB0PH7M	CC 22 UF 6.3V B
C2875	CS0UB0N15K	CC 0.1 UF 10V B	C3027	CS0RB0PH7M	CC 22 UF 6.3V B
C2876	CS0UB0N15K	CC 0.1 UF 10V B	C3028	CS0RB0PH7M	CC 22 UF 6.3V B
C2877	CS0UB0N15K	CC 0.1 UF 10V B	C3030	CS0RB0N17K	CC 10 UF 10V B
C2878	CS0UB0N15K	CC 0.1 UF 10V B	C3032	CS0UB0N15K	CC 0.1 UF 10V B
C2879	CS0UB0N15K	CC 0.1 UF 10V B	C3033	CS0UB0413K	CC 0.001 UF 50V B
C2880	CS0UB0N15K	CC 0.1 UF 10V B	C3034	CS0UB0N15K	CC 0.1 UF 10V B
C2881	CS0UB0N15K	CC 0.1 UF 10V B	C3035	CS0UB0N15K	CC 0.1 UF 10V B
C2882	CS0UB0N15K	CC 0.1 UF 10V B	C3038	CS0UB04L3K	CC 0.0033UF 50V B
C2883	CS0UB0N15K	CC 0.1 UF 10V B	C3039	CS0UB0N15K	CC 0.1 UF 10V B
C2884	CS0UB0N15K	CC 0.1 UF 10V B	C3041	CS0RB0N17K	CC 10 UF 10V B
C2885	CS0UB0N15K	CC 0.1 UF 10V B	C3044	CS0UB0P16K	CC 1 UF 6.3V B
C2888	CS0PB0NQ5K	CC 0.47 UF 10V B	C3045	CS0UB0413K	CC 0.001 UF 50V B
C2889	CS0UB0N15K	CC 0.1 UF 10V B	C3046	CS0RB0N17K	CC 10 UF 10V B
C2891	CS0UB0N15K	CC 0.1 UF 10V B	C3047	CS0UB0N15K	CC 0.1 UF 10V B
C2895	CS0UB0214K	CC 0.01 UF 16V B	C3048	CS0UB0N15K	CC 0.1 UF 10V B
C2902	CS0UB0N15K	CC 0.1 UF 10V B	C3049	CS0UB0413K	CC 0.001 UF 50V B
C2903	CS0UB0N15K	CC 0.1 UF 10V B	C3050	E71GMM151D	CE 150 UF 2V
C2904	CS0UB0N15K	CC 0.1 UF 10V B	C3051	CS0RB0N17K	CC 10 UF 10V B
C2905	CS0UB0N15K	CC 0.1 UF 10V B	C3607	CS0UB0214K	CC 0.01 UF 16V B
C2906	CS0UB0N15K	CC 0.1 UF 10V B	C4230	CS0UB0N15K	CC 0.1 UF 10V B
C2907	CS0UB0N15K	CC 0.1 UF 10V B	C4236	CS0UB0N16K	CC 1 UF 10V B
C2908	CS0UB0N15K	CC 0.1 UF 10V B	C4240	CS0UB0N15K	CC 0.1 UF 10V B
C2909	CS0UB0N15K	CC 0.1 UF 10V B	C4247	CS0UCH412J	CC 100 PF 50V CH
C2911	CS0RB0N17K	CC 10 UF 10V B	C5803	CS0UB0413K	CC 0.001 UF 50V B
C2912	CS0UB0N15K	CC 0.1 UF 10V B	C5804	E964M0221D	CE 220 UF 6.3V
C2913	CS0UB0N15K	CC 0.1 UF 10V B	C5808	CS0UB0N15K	CC 0.1 UF 10V B
C2914	CS0UB0N15K	CC 0.1 UF 10V B	C5809	CS0PB0415K	CC 0.1 UF 50V B
C2915	CS0UB0N15K	CC 0.1 UF 10V B	C5811	CS0UCH4Q1J	CC 47 PF 50V CH
C2916	CS0UB0N15K	CC 0.1 UF 10V B	C5814	CS0UCH4Q1J	CC 47 PF 50V CH
C2917	CS0RB0N17K	CC 10 UF 10V B	C5815	CS0UB0N15K	CC 0.1 UF 10V B
C2918	CS0UB0N15K	CC 0.1 UF 10V B	C5818	CS0UB0N15K	CC 0.1 UF 10V B
C2919	CS0UB0N15K	CC 0.1 UF 10V B	C5819	CS0UB0N15K	CC 0.1 UF 10V B
C2925	CS0RB0N17K	CC 10 UF 10V B	C5827	CS0UB0214K	CC 0.01 UF 16V B

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		CAPACITORS	
C5828	CS0UB0214K	CC	0.01 UF 16V B
C5829	CS0UB0NL5K	CC	0.33 UF 10V B
C5830	CS0UB0P16K	CC	1 UF 6.3V B
C5831	CS0UCH4S1J	CC	56 PF 50V CH
C5832	CS0UB0N15K	CC	0.1 UF 10V B
C5833	CS0UB0N15K	CC	0.1 UF 10V B
C5834	CS0UB0N15K	CC	0.1 UF 10V B
C5835	CS0UCH411J	CC	10 PF 50V CH
C5836	CS0UCH4L1J	CC	33 PF 50V CH
C6201	CS0UB0215K	CC	0.1 UF 16V B
C6202	CS0UB0215K	CC	0.1 UF 16V B
C6210	CS0UB0214K	CC	0.01 UF 16V B
C6213	CS0PB0N16K	CC	1 UF 10V B
C6501	CS0PB0N16K	CC	1 UF 10V B
C6503	CS0PB0N16K	CC	1 UF 10V B
C6505	E66VM2101D	CE	100 UF 16V
C6510	CS0PB0N16K	CC	1 UF 10V B
C6514	CS0PB0N16K	CC	1 UF 10V B
C6516	CS0PB0N16K	CC	1 UF 10V B
C6518	CS0PB0N16K	CC	1 UF 10V B
C7001	CS0PB0315K	CC	0.1 UF 25V B
C7002	CS0PB04Q3K	CC	0.0047UF 50V B
C7003	CS0PB02U4K	CC	0.068 UF 16V B
C7004	CS0PB0413K	CC	0.001 UF 50V B
C7007	CS0PB04Q3K	CC	0.0047UF 50V B
C7008	CS0PB0NQ5K	CC	0.47 UF 10V B
C7009	CS0PB0315K	CC	0.1 UF 25V B
C7010	CS0PB0415K	CC	0.1 UF 50V B
C7011	CS0PB0316K	CC	1 UF 25V B
C7012	CS0PCH4H2J	CC	220 PF 50V CH
C7017	C0JTB05H3K	CC	0.0022UF 500V B
C7018	C0JTB05H3K	CC	0.0022UF 500V B
C7020	CS0PB0414K	CC	0.01 UF 50V B
C7022	CS0SB0317K	CC	10 UF 25V B
C7026	CS0SB0317K	CC	10 UF 25V B
C7030	C339SLBB1J	CC	12 PF 6KV SL
C7031	CS0PB0414K	CC	0.01 UF 50V B
C7032	CS0PB0414K	CC	0.01 UF 50V B
C7033	C339SLBB1J	CC	12 PF 6KV SL
C7602	E70QU0101M	CE	100 UF 6.3V
C8102	CS0PCH412J	CC	100 PF 50V CH
C8103	CS0PCH412J	CC	100 PF 50V CH
C8104	CS0PCH4Q2J	CC	470 PF 50V CH
C8105	CS0PCH412J	CC	100 PF 50V CH
C8106	CS0PCH4Q2J	CC	470 PF 50V CH
C8107	CS0PCH4Q2J	CC	470 PF 50V CH
C8108	CS0PCH4Q2J	CC	470 PF 50V CH
C8109	CS0PCH412J	CC	100 PF 50V CH
C8110	CS0PCH412J	CC	100 PF 50V CH
C8111	CS0PCH4Q2J	CC	470 PF 50V CH
		DIODES	
D501	DE7RB3302B	DIODE ZENER	UDZSNP33B TE-17
⚠D504	D7KE101520	DIODE VARISTA	S10K150E2S5M4
D505	D2WXN40050	DIODE SILICON	1N4005-EIC
D506	D28R11FS20	DIODE	EC11FS2-TE12L
⚠D507	D4JXRM11C0	DIODE SILICON	ZRM11C
⚠D508	D4JXRM11C0	DIODE SILICON	ZRM11C
D509	DE7RB3302B	DIODE ZENER	UDZSNP33B TE-17
⚠D510	D4JXRM11C0	DIODE SILICON	ZRM11C
⚠D511	D4CT01H6A0	DIODE RECTIFIER	1H6-A2
D512	D2BXARS010	DIODE SILICON	SARS01-V1
⚠D514	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC
⚠D515	D28F31DQ10	DIODE SCHOTTKY	31DQ10-FC
⚠D516	D4CT01H3A0	DIODE RECTIFIER	1H3-A2
D517	D97U01201B	DIODE,ZENER	MTZJ12B T-77
⚠D518	D4JXRM11C0	DIODE SILICON	ZRM11C
D519	DGERMA1110	DIODE SILICON	MA111-(TX)
D520	DGERMA1110	DIODE SILICON	MA111-(TX)
D521	DGERMA1110	DIODE SILICON	MA111-(TX)
D522	DGERMA1110	DIODE SILICON	MA111-(TX)
⚠D523	D2AA045CT0	DIODE SCHOTTKY BARRIER	MBRF1045CT
D526	DE7RB2202B	DIODE ZENER	UDZSNP22B TE-17
D527	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D528	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D3001	D2ARMAB340	DIODE SCHOTTKY	SMAB34
D3002	D2ARMAB340	DIODE SCHOTTKY	SMAB34
D3003	D2ARMAB340	DIODE SCHOTTKY	SMAB34

REF. NO.	PART NO.	DESCRIPTION	
		DIODES	
D3004	D2ARMAB340	DIODE SCHOTTKY	SMAB34
D3006	D2ARMAB340	DIODE SCHOTTKY	SMAB34
D3403	DGERMA1110	DIODE SILICON	MA111-(TX)
D6204	DGJRT54WS0	DIODE SCHOTTKY BARRIER	BAT54WS
D6206	DGERMA1110	DIODE SILICON	MA111-(TX)
D7003	DE7RB9R12B	DIODE ZENER	UDZSNP9.1B TE-17
D7004	DGERMA1110	DIODE SILICON	MA111-(TX)
D7012	D1VT001330	DIODE,SILICON	1SS133T-77
D7013	DGERMA1110	DIODE SILICON	MA111-(TX)
D7014	DGERMA1110	DIODE SILICON	MA111-(TX)
D7017	DGERMA1110	DIODE SILICON	MA111-(TX)
D7018	DGERMA1110	DIODE SILICON	MA111-(TX)
D7024	DGERMA1110	DIODE SILICON	MA111-(TX)
D7601	0021E2Q140	LED	LTL-1CHEE-002A
		ICS	
⚠IC301	I03SP20520	SOUND AMP 5W 2CH	LA42052-E
⚠IC501	ICAL055710	POWER IC CONTROL	FA5571N-D1-TE1
⚠IC502	I1KJ9A431A	VARIABLE SHUNT REGULATOR TAPE	KIA431A-AT
⚠IC503	I03F9797M0	CHARGE POMP CONTROL	LA5797M-TE-L-E
⚠IC505	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC2801	I56M040120	SCALER C5+	R8J04012BG
IC2802	IGXM05162E	DDR2-800 512M CL=5	H5PS5162FFR-S5C
IC2803	S39A06JE02	MEMORY DATA EEPROM 256K I2C	AT24C256BN-SH-T
IC2804	-----	MEMORY DATA FLASH 32M SPI 8PIN	AT25DF321-SU
IC2806	ICRJ0C2560	EEPROM 256K I2C	AT24C256BN-SH-T or
	ICRJ0256B0	EEPROM 256K 12C	AT24C256BN-10SU-1.8
⚠IC3004	I5HJ950UC0	REGULATOR VO=5.0V IO=800MA	S-1170B50UC-OUJTFG
⚠IC3006	I07F993230	DC-DC CONVERTER 3.0A	BD9323EFJ
⚠IC3007	I07F993230	DC-DC CONVERTER 3.0A	BD9323EFJ
⚠IC3008	IGRF0704U0	2A DROPOUT LINEAR REGULATOR	UP7704U8
IC6201	IC7J0291C0	RESET IC 2.9 V TYPE CMOS	R3111N291C-TR-F
IC6501	I55J040520	DUAL 4CH ANALOG MULTIPLEXER	TC74LVX4052FT
IC7001	I07F098930	INVERTER CONTROL IC	BD9893F-E2
		TRANSISTORS	
⚠Q501	TJA0N50FS0	FET	KHB9D0N50F2-U/P
Q503	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q504	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q505	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q2805	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q2806	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q3001	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q3002	TPAAA05001	COMPOUND TRANSISTOR	KRA101SRTK
Q3003	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q3004	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q3005	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q3008	TK9A3443B0	FET	SI3443BDV-T1-E3
Q3407	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q4204	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4307	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q6502	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q6504	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q7001	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q7002	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠Q7004	TS3M000040	COMPOUND TRANSISTOR	FW256-TL-E
		COILS &TRANSFORMERS	
⚠L502	029X000420	COIL,LINE FILTER	SS11VL-R10093
L503	02167E220K	COIL	22 UH
L504	02167E100K	COIL	10 UH
L3002	021AMG100M	COIL	10 UH
L3003	021AMG100M	COIL	10 UH
L3008	021AMG100M	COIL	10 UH
L5803	021AS9224J	COIL	0.22 UH
L5804	0216SD220J	COIL	22 UH
⚠T501	0481280258	TRANSFORMER,SWITCHING	81280258
⚠T7001	048137001R	TRANSFORMER,SWITCHING	8137001R
		JACKS	
⚠J501	064Q1A0014	JACK,AC	CCT2302-0921FC
J4206	060R401140	RCA JACK	RCA-101HT(OR)
J4302	060R131024	HEADPHONE JACK	PJ-364H
J8101	062R750007	PLUG	DIN-417HA-01
J8102	060R411058	RCA JACK	RCA-341H(NI)-09
J8103	060R431039	RCA JACK	RCA-228H(3)NI-02
J8104	060R431040	RCA JACK	RCA-341H(2)NI-06
		SWITCHES	
SW2202	0504101T34	SWITCH,TACT	EVQ21505R
SW2203	0504101T34	SWITCH,TACT	EVQ21505R

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		SWITCHES	
SW2204	0504101T34	SWITCH,TACT	EVQ21505R
SW2205	0504101T34	SWITCH,TACT	EVQ21505R
SW2206	0504101T34	SWITCH,TACT	EVQ21505R
SW2207	0504101T34	SWITCH,TACT	EVQ21505R
SW2208	0504101T34	SWITCH,TACT	EVQ21505R
		P.C.BOARD ASSEMBLIES	
PCB240	A39A05W240	POWER PCB ASS'Y	CEH434A
PCB270	A39A06J270	OPERATION PCB ASS'Y	CEH438A
PCBDA0	A39A06JDA0	REMOCON PCB ASS'Y	CEH439A
PCBDH0	A39A05WDH0	DIGITAL PCB ASS'Y	CEJ483A
		MISCELLANEOUS	
B304	024HC13914	CORE,BEADS	HCB3216KF-391T20
B305	024HC13914	CORE,BEADS	HCB3216KF-391T20
B501	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B2801	024HC52213	CORE,BEADS	FCM1608KF-221T05
B2802	024HC52216	CORE,BEADS	HCB1608KF-221T20
B2803	024HC52216	CORE,BEADS	HCB1608KF-221T20
B2805	024HC51816	CORE,BEADS	HCB1608KF-181T20
B2807	024HC52216	CORE,BEADS	HCB1608KF-221T20
B2809	024HC52216	CORE,BEADS	HCB1608KF-221T20
B2810	024HC52216	CORE,BEADS	HCB1608KF-221T20
B2811	024BC5121J	CORE,BEADS	BLM18PG121SN1D
B2812	024BC5121J	CORE,BEADS	BLM18PG121SN1D
B2813	024BC5121J	CORE,BEADS	BLM18PG121SN1D
B2814	024BC5121J	CORE,BEADS	BLM18PG121SN1D
B2817	024BC5121J	CORE,BEADS	BLM18PG121SN1D
B2818	024BC5121J	CORE,BEADS	BLM18PG121SN1D
B3016	024HC51816	CORE,BEADS	HCB1608KF-181T20
B3601	024HC51816	CORE,BEADS	HCB1608KF-181T20
B4215	024HC56005	CORE,BEADS	FCM1608CF-600T06
B5803	024HC51023	CORE,BEADS	FCM1608KF-102T02
B5804	024HC51023	CORE,BEADS	FCM1608KF-102T02
B5805	024BC5121J	CORE,BEADS	BLM18PG121SN1D
B6201	024HC51023	CORE,BEADS	FCM1608KF-102T02
B6202	024HC51023	CORE,BEADS	FCM1608KF-102T02
B6203	024HC51023	CORE,BEADS	FCM1608KF-102T02
B6503	024HC52213	CORE,BEADS	FCM1608KF-221T05
BT001	141U004021	BATTERY,MANGAN	AAA(R03)
BT002	141U004021	BATTERY,MANGAN	AAA(R03)
CD301	06CP143403	CORD CONNECTOR	CP143403
CP501	06977NM020	CONNECTOR PCB SIDE	127301123K2
CD2801	06EH2U2512	CORD CONNECTOR	EH2U2512
CD6202	06CP231504	CORD CONNECTOR	CP231504
CD7602	06CP250804	CORD CONNECTOR	CP250804
CP2201	069S230639	CONNECTOR PCB SIDE	A2001WR2-3P
CP2801	06GG270029	CONNECTOR PCB SIDE	A2001WV-7A
CP2802	06GG2B0029	CONNECTOR PCB SIDE	A2001WV-11A
CP2803	06GFAA1004	CONNECTOR PCB SIDE	UA11-04010B140-R
CP2804	06GG2U0051	CONNECTOR PCB SIDE	A2006WV30
CP3001	06CK7N0301	CORD CONNECTOR	TWG-P23P-A1
CP4203	06G7S21501	CONNECTOR PCB SIDE	WD-00021-R
CP4301	06CK7N0301	CORD CONNECTOR	TWG-P23P-A1
CP7001	069SJ20019	CONNECTOR PCB SIDE	C3502WR0-2P-HK
CP7002	069SJ20019	CONNECTOR PCB SIDE	C3502WR0-2P-HK
CP7601	069S250629	CONNECTOR PCB SIDE	A2001WV2-5P
CP8101	06977NM020	CONNECTOR PCB SIDE	127301123K2
EL2401	124116281A	EYE LET	XRY16X28BD
EL2402	124120301A	EYE LET	XRY20X30BD
⚠F501	081PC04005	FUSE	51MS040L
⚠F7001	0835C04003	MICRO FUSE	20N_4000FS
FH501	067A0T0011	HOLDER,FUSE	CNT47-0003A
FH502	067A0T0011	HOLDER,FUSE	CNT47-0003A
NR2801	110P4330M5	R,NETWORK	4D02WGJ0330TCE
NR2802	110P4330M5	R,NETWORK	4D02WGJ0330TCE
NR2803	110P4330M5	R,NETWORK	4D02WGJ0330TCE
NR2804	110P4220M5	R,NETWORK	4D02WGJ0220TCE
NR2805	110P4220M5	R,NETWORK	4D02WGJ0220TCE
NR2814	110P4330M5	R,NETWORK	4D02WGJ0330TCE
NR2815	110P4330M5	R,NETWORK	4D02WGJ0330TCE
NR3601	110P4473M5	R,NETWORK	4D02WGJ0473TCE
NR3602	110P4473M5	R,NETWORK	4D02WGJ0473TCE

REF. NO.	PART NO.	DESCRIPTION	
		MISCELLANEOUS	
NR3605	110P4473M5	R,NETWORK	4D02WGJ0473TCE
NR3606	110P4473M5	R,NETWORK	4D02WGJ0473TCE
NR6501	110P4223M5	R,NETWORK	4D02WGJ0223TCE
NR6502	110P4223M5	R,NETWORK	4D02WGJ0223TCE
NR6503	110P4223M5	R,NETWORK	4D02WGJ0223TCE
NR6504	110P4223M5	R,NETWORK	4D02WGJ0223TCE
OS7601	077Q038009	REMOTE RECEIVER	KSM-2003TCW2P
⚠SP301	070Y433007	SPEAKER	S0308F05
⚠SP302	070Y433007	SPEAKER	S0308F05
⚠TH501	DSQDNE5R0L	THERMISTOR	5D2-08LCS
⚠TU5801	0164100027	DIGITAL TUNER	ENG36E18KRF
⚠V2801	A39A05W360	LCD MODULE ASS'Y	M185B1-P01-CL01-OR1
X2801	100GT02509	CRYSTAL	SMD-49 C25000H025

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

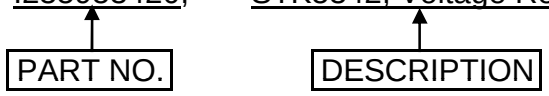
CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

HOW TO ORDER PARTS

When placing a parts order, please have the following information.

A. MODEL NUMBER and VERSION NUMBER
   Located on the back of the unit.
   EX: VR0100 (Model no.), VERSION/A (Version no.)

B. PART NO. and DESCRIPTION
   Located in your SERVICE MANUAL. (See pages M1-1~M2-5)
   EX: I235953420, STK5342, Voltage Regulator



C. QUANTITY

D. Mailing address and NAME
   EX: ABC Service Center
   111 Broadway
   NEW YORK, N.Y. 10005

   ATTN: MR. X Y Z

ORION SALES, INC.
HIGHWAY 41
ORION PLACE
PRINCETON, INDIANA 47670